DYNAMICS OF INTERACTION PATTERNS AMONG INDUSTRIAL FOREMEN

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ABSTRACT

DYNAMICS OF INTERACTION PATTERNS
AMONG INDUSTRIAL FOREMEN

by James A. McClung

This investigation had three main purposes. First, it examined the interaction patterns of industrial foremen for ten specific tasks. Second, these patterns were compared to those expected by their immediate supervisors. And third, an analysis was made to test the difference between the interaction patterns for high and low productive foremen. Both the direction and the channel of interaction were examined.

The foremen sampled were employed by a medium-sized machinery manufacturing plant located in the midwest. The manufacturing superintendent ranked each of these foremen according to their weekly productivity. The top twenty-seven per cent and the bottom twenty-seven per cent constituted the high and the low productive foremen. Therefore, the interaction patterns were obtained for all the foremen, as well as for the high and the low productive ones. These patterns were then compared to those expected by their production supervisors.

For each task, the foremen (and their immediate superiors) estimated: the amount of time spent per week, the direction of interaction necessary to carry out

efficiently the task, and the manner of carrying out the task--written or oral. In addition, the productivity rankings of the foremen were correlated to their scores on the Fleishman Leadership Opinion Questionnaire.

The following conclusions were reached. First, the foremen and their immediate supervisors, as well as the high and the low productive foremen, correlated highly in relation to their perceptions of ranked importance for the ten tasks. Second, the production supervisors and their foremen correlated significantly on the ranked importance of the ten tasks, but they did not agree completely on the distribution of time in relation to the importance of each task. There was a high correlation, however, between the high and the low productive foremen. Third, the production supervisors expected a more balanced interaction pattern among the foremen and their subordinates, superiors, and other foremen. The foremen were more independent than expected and devoted significantly more time not interacting with anyone. The high productive foremen displayed a more independent overall interaction pattern than the low productive foremen. The latter devoted more time communicating with their superiors and other foremen; although this was less than expected by their production supervisors.

Fourth, the foremen in total relied on their superiors for analytical tasks. Fifth, the production supervisors

expected four times more written communication than the foremen estimated they used during the week. The high productive foremen depended more on the written form than the low productive primarily because they used this channel more when interacting with subordinates. Even though the low productive foremen used this method more than the high productive with superiors and other foremen, the overall pattern supported the conclusion above. And finally, there was no rank correlation between the productivity rankings provided by the manufacturing superintendent and the results obtained on the Leadership Opinion Questionnaire. Therefore, this questionnaire cannot be used as an objective evaluation for predicting the productivity of prospective foremen.

The results of this investigation suggest there was a difference between the expected and the actual interaction patterns for industrial foremen. This varied in accordance to the task being performed. Similar findings would be predicted at other levels of the organizational structure.

DYNAMICS OF INTERACTION PATTERNS AMONG INDUSTRIAL FOREMEN

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CHAPTER I

INTRODUCTION

Any area of academic achievement requires constant investigation to find analytical and descriptive evidence for principles used and taught. The study of formal organization theories, for example, has many topics which offer a challenge to any research worker. The problem to be considered in this study falls mainly in the interaction patterns of formal organizations.

This study investigates the interaction processes required to carry out ten specific tasks at the foreman's level of authority in an industrial setting. These processes will be examined from the standpoint of the source, the message, the channel, and the receiver.

Before dealing directly with a specific case study, perhaps a review of theoretical trends and previous research would provide a foundation for the concepts to be analyzed. Three basic divisions will provide this background information: first, a historical review of the trends in organizational theories; second, an analysis of basic concepts which stem from these trends; and third, a review of research related to these basic concepts.

Trends in Organizational Theories

When analyzing the historical perspective of organization and management concepts, there are three distinct periods or movements that emerge. Each of these possess distinct characteristics from which the modern organizational theorists borrow. The first period can be called the early influences of management and/or scientific management. The work of such men as Taylor, Urwick, Fayol and others promoted this school of thought from 1900 until the 1940's. The second period, or movement of organizational theories, began in the 1940's and continues to operate today. This era stressed the importance of the human relationists and behavioral scientists. And, finally, from 1955 until the present, the "revisionists" (to use Warren Bennis' term) have organized some influential concepts.

William Scott pictures these three periods as the macro-micro-macro approach to organizational theory. The work completed by the disciples of the scientific management school concerned itself with principles common to all organizations (macro). This "model age" dealt with the "gross anatomical parts and processes of the formal organization and was not well equipped to account for variation from the established framework."[1]

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[1]William G. Scott, "Organization Theory: An Overview and an Appraisal," Journal of the Academy of Management, Vol. 4, No. 1 (April, 1961), p. 24.

However, the human relationists did concern themselves with many variations which resulted from human behavior operating within the organizational structure. Thus, a microscopic examination of situations, human variables, and interaction networks took on research significance.

This type of research leads to a more macroscopic view once again with the infiltration of the modern organizational theorists. They are interested in productivity, leadership, participation, and the social system as a whole. That is, there is a study of the organization in total--a gestalt approach. Thus, the macro-micro-macro approach to organizational theory supports the three divisions listed above.

Early Influence and Scientific Management

The earliest influence of management thought can be traced to Biblical times.[2] These historical accounts emphasize the importance of organizing, managing, and stabilizing people and objects. Even Plato and Aristotle stated a number of principles which we follow today. However, it was not until the British mathematician Charles Babbage perceived the importance of scientific and mathematical methods that men began to consider the importance

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[2]Dalton McFarland, Management Principles and Practices (2nd edition; New York: Macmillan Co., 1964), p. 26.

of scientific management. He recommended precise and accurate observations and measurements in making decisions in the business enterprise.[3] Thus, early in the 19th century, Babbage advocated a foundation upon which scientific management was formulated. Others followed in formalizing the scientific management school.

The practitioners.--It was not until after the Civil War that the basic concept of scientific management became useful to the business man. Henri Fayol, a French industrialist, sought to present principles of management that would bring about effective management. He divided the operations of a company into six main groups--technical, commercial, financial, security, accounting, and administrative operations. The administration was broken down into five main aspects--to plan, to organize, to command, to co-ordinate and to control.[4] His philosophy supported fourteen principles of management which became his basis for a theory of management. Without principles, he wrote, "one is in darkness and chaos. These principles are the

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[3]Dalton McFarland, Management Principles and Practices (1st edition; New York: Macmillan Co., 1958), p. 24.

[4]L. Urwick, The Elements of Administration (New York: Harper and Brothers, 1943), pp. 16-17.

lighthouse fixing the bearings, but they can only serve those who already know the way into port."[5]

Frederick Taylor refined the science of management through practical experience. He experimented with various work situations in order to improve the performance and efficiency of the workmen. His major concern was with the following conditions: (1) unevenness and lack of uniformity in management effort; (2) lack of apparent relation between good management and the payment of dividends; and (3) widespread inefficiency of labor, and 'systematic soldiering' of workers on the job.[6] Taylor's philosophy was not unique, but strongly influenced by the Great Britain industrial revolution of ideas; and he saw implications of these ideas for the United States. Ralph Davis wrote:

> Taylor can hardly be said to have been a theorist; he was rather a keen observer, analyst, and student, with some scientific training, but he appears to have gained most of his ideas from practical experience . . . that neither the management nor the men really knew what constituted a fair day's work, and that this was the cause of much of the misunderstanding and strife between them.[7]

However, Taylor is often referred to as the "father of scientific management" in the United States. To him the

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[5]Henri Fayol, Industrial and General Administration, published under asuspices of the International Management Institute (Geneva English publishers, Sir Isaac Pitman and Sons, London, 1925), p. 42.

[6]McFarland (1st edition), op. cit., p. 25.

[7]Ralph Currier Davis, Industrial Organization and Management (New York: Harper and Brothers, 1940), pp. 13-14.

art of management was "knowing exactly what you want men to do, and then seeing that they do it in the best and cheapest way."[8] His prescribed duties for management stated that:

1. They develop a science for each element of a man's work, which replaces the old rule-of-thumb method.
2. They scientifically select and then train, teach, and develop the workman, whereas in the past he chose his own work and trained himself as best he could.
3. They heartily cooperate with the men so as to insure all of the work being done in accordance with the principles of the science which has been developed.
4. There is an almost equal division of the work and the responsibility between the management and the workmen. The management take over all work for which they are better fitted than the workmen, while in the past almost all of the work and the greater part of the responsibility were thrown upon them.[9]

Thus, both Fayol and Taylor applied scientific principles of management. However, Taylor worked primarily on the operator level from the bottom of the industrial hierarchy upward, while Fayol concentrated on the managing director and worked downward.

There were likewise other practitioners of scientific management beside Fayol and Taylor. Henry L. Gantt appeared to understand human psychology more than Taylor and emphasized "non-financial rewards to promote satisfactory morality."[10] He dealt with the worker's environment and

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[8] Ibid., p. 14.

[9] Frederick W. Taylor, Scientific Management (New York: Harper and Brothers, 1947), pp. 36-37.

[10] McFarland (1st edition), op. cit., pp. 28-29.

likewise developed scheduling charts to tabulate units of time and operations. His book spelled out three main points which have contributed to modern organizational theory:

1. The task idea he felt extended far beyond individual workmen to industries as a whole. He placed heavy emphasis upon proper training which would make his system of management self-perpetuating.
2. He used a philosophical and psychological approach to the problem of training workmen.
3. He emphasized the application of managerial principles and organization to the business as a whole.[11]

Frank Gilbreth's work with bricklayers likewise provided new concepts of work-planning and work-training in the most efficient methods. He suggested that the worker was most efficient in an 180 degree radius and thus his tools should be within that distance. He also showed a great concern for the human factors (health and safety) of the workers.[12] Harrington Emerson, like Fayol, emphasized the importance of spelling out the principles of management. His twelve principles of efficiency were to become a reality through the function of the line and staff within the organization structure. These procedures were designed to reduce the waste of human motion and raw materials, and likewise to train and promote leadership.

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[11]Henry L. Gantt, Work, Wages, and Profits (The Engineering Magazine Co., 1910).

[12]McFarland (1st edition), op. cit., p. 29.

Urwick collected research data completed during this period and endeavored to bridge the gap between machines and man. He wrote that "one of the problems of our time is to bridge the widening mental gulf between those educated and trained solely in the humanities and those whose minds are shaped by a life devoted to that machine technology on which all are dependent increasingly for the material bases of existence."[13] Through specific instructions for each member of the line and staff, he endeavored to bridge this gap. According to his philosophy, the principles of administration include: planning, forecasting, controlling, investigating, appropriating, organizing, co-ordinating, and commanding.[14] These were principles that he presented in hopes of describing a coherent and logical pattern of organization and management--a true science of management.

Of course other pioneers could be mentioned. These would include: Carl Barth, Henry Town, H. K. Hathaway, Sanford E. Thompson, Dwight Merrick, Morris L. Cooke, and James Mapes Dodge. Along with Fayol, Taylor, Emerson, Gantt, and Urwick, we find the practitioners of the scientific management movement.

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[13]Urick, op. cit., p. 10.

[14]Ibid., p. 18.

The scholars.--The scientific management era likewise produced some outstanding scholars. For example, Ralph C. Davis' philosophy was that the "entire management process concerns itself with ways and means to realize predetermined results with the intelligent use of people whose efforts must be properly motivated and guided."[15] William Newman, on the other hand, concerned himself with: (1) dividing and grouping the work to be done into individual jobs, and (2) defining the relationship between the individual and his job.[16] Mooney and Reiley also emphasized principles of organization. Their nine points centered upon the logical pattern of principle, process, and effect.[17]

Some students of management would include Peter Drucker in this list of scholars, but his endeavors were primarily an functional approach. He was in opposition to the "professional workmanship" in functional and specialized work. According to him, the science of management was a functional work that tended to become an end in

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[15]Ralph Davis, The Fundamentals of Top Management (New York: Harper and Brothers Publishers, 1951).

[16]William H. Newman, Administrative Action (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1951).

[17]J. C. Mooney and A. C. Reiley, Onward Industry (New York: Harper and Brothers Publishers, 1931). Rewritten as The Principles of Organization (New York: Harper and Brothers Publishers, 1939).

itself.[18] His concern for the human elements of the organization was based on the assumption that people want to work; they seek satisfaction through work. "What we need is to replace the externally imposed spur of fear with an internal self-motivation for performance. Responsibility--not satisfaction--is the only thing that will serve."[19] The task facing management was, according to Drucker, to reach the worker's motivation, to enlist his participation, and to mobilize the worker's desire to work.[20]

These remarks emphasize his criticism of the scientific management's practical approach. He attributed the ineffectiveness of this movement to management's failure in solving the problem of managing the worker and the work. The two blind spots in management were: (1) assuming that the human organism is a machine tool, and (2) that the division of planning and doing created separation of classes.[21]

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[18]Peter F. Drucker, The Practice of Management (New York: Harper and Brothers Publishers, 1954), p. 123.

[19]Ibid., p. 303.

[20]Ibid., p. 272.

[21]Ibid., p. 285.

Thus, in short, the scientific management movement was developed originally by engineers, and later became a distinct profession in itself. As such, it drew from such fields as engineering, economics, and psychology whatever principles and procedures that appeared useful in making the organization a more efficient operation.[22] Mason Haire described this movement in the following points:

1. Control within the enterprise is properly exercised through an authority relationship accepted within the enterprise.
2. Authority is delegated from above. It has its source in the institution of society--"private property".
3. Authority is best supported by the promise of economic reward, rather than by the treatment of economic deprivation.
4. Management control is exercised through formal structure that relates individual subordinates with superiors.
5. Worker acceptance of authority is on the basis of individual, rational judgment.
6. Man's work performance is a function of physiological characteristics.
7. Problems of management control are best solved through scientific adaptation of work processes to worker's physiological characteristics and economic reward for his cooperation within the proper framework of formal structure.[23]

William Scott was not so explicit in his summary of the scientific management movement. To him there were four pillars: (1) division of labor; (2) scalar and functional processes (chain of command, delegation of authority, etc.); (3) structures (logical relationships

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[23]Mason Haire, Organization Theory In Industrial Practice (New York: John Wiley and Sons, 1962), p. 109.

of functions); and (4) span of control (number of subordinates a manager can effectively supervise).[24] These pillars of classical organizational theory formed the foundation for the human relationists and revisionists.

The worth of the scientific management movement unfortunately was misunderstood and misused by many followers of Taylor. Efficiency experts were used to increase production for management and likewise in cutting rates. These misconductions created problems with the worker's salaries and worker relations.

Bridging the Gap Between Scientific Management and Human Relations Movement

Mary Parker Follett and Chester Barnard did not contribute a great deal to the research methodology of management and organization, but they did lend support to both the working ideas of the scientific management and the human relationists. Mary Parker Follett pictured the human organism and the relationship of individuals as the foundation of a business organization. And likewise, the organization could be portrayed as a whole human organization which makes up society. Thus, she endeavored to stress the importance of motivating desires of the human organism.

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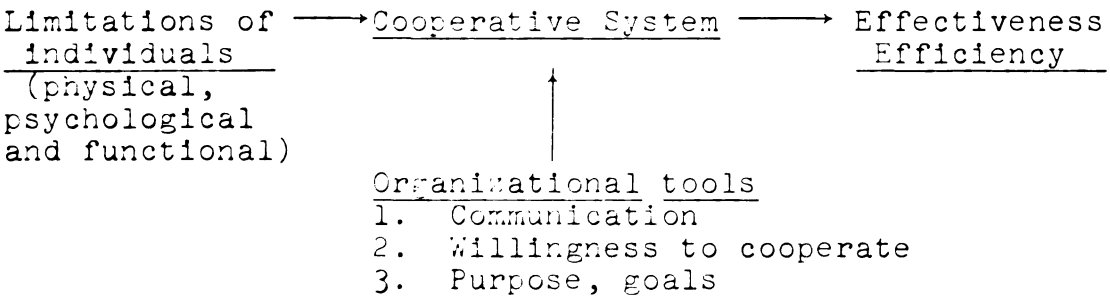
[24]Scott, op. cit., pp. 9-10.

And thirdly, she was concerned with the conflict of human goals with organizational demands.[25]

Chester Barnard, on the other hand, emphasized the "cooperative system" of management. The efficiency of an organization, he wrote, depended upon the personal contribution and participation of its workers. He recognized the limitations of the individual but likewise stressed the tools available for management to balance these limitations in order to obtain an effective and efficient cooperative system.[26]



Management is judged on the "cooperative system," whereas the individual is judged on the effectiveness and efficiency of his work. Certainly these principles triggered further research in the human relations movement.

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[25]Mary Parker Follett, Dynamic Administration, edited by H. C. Metcalf and L. Urwick (New York: Harper and Brothers Publishers, 1942), p. 21.

[26]Chester I. Barnard, The Functions of the Executive (Cambridge, Mass.: Harvard University Press, 1938).

Human Relations Movement--1940 to 1966

The work of the scientific management advocates became the catalyst for the research and teaching in the university behavioral science courses, and the interest in the human relations of business.[27] McFarland defines human relations as "the science which studies the activities, attitudes, and interrelationships existing among people at work."[28] Since the turn of the century, this school of thought has concerned itself with the workman, and his relationship to his company, his job and his peers.

This microscopic approach to management stimulated the work of industrial psychologists (with their work on efficiency, training, and selecting of employees); industrial sociologists (who studied large and small groups); applied anthropologists (research labor-management relations; negotiations; and collective bargaining); and social-psychologists (who dealt with mass communication, propaganda, and rumor transmission).[29]

This movement as a science originated with the famous Hawthorne studies which were conducted by Elton Mayo

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[27]McFarland (2nd edition), op. cit., p. 2.

[28]McFarland (1st edition), op. cit., p. 337.

[29]McFarland (2nd edition), op. cit., pp. 36-37.

and Fritz Roethlisberger at a Western Electric Company. Their work centered upon the importance of psychology and sociology, as well as the environment. This classic study directed the attention of management research to the components of a job and the worker's morale. With emphasis upon the "social system," "the major contribution of the Hawthorne studies was the integration of Pareto's idea of the social system into a meaningful method of analysis for the study of behavior in human organizations."[30] The study turned away from the description of component parts and researched the interrelationships among parts. Thus, the human relations movement was designed to study the individual human behavior, the forces and social processes of group life.[31] This interdisciplinary science, likewise, included contributions by economics, history, political science, theology, and jurisprudence.

Peter Drucker described the human relations movement as a study which considered the relationship between what a man is and what kind of work he does.[32] There were also seven points that Mason Haire emphasized in seeking to

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[30]Scott, op. cit., pp. 14-15.

[31]John M. Pfiffner and Marshall Fels, The Supervision of Personnel (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964), pp. 17-27.

[32]Drucker, op. cit., p. 288.

explain the human relationist's interpretation of organizations:

1. Though the existence of authority is admitted, control within the enterprise is properly exercised through use of persuasion.
2. Authority is granted from below and has its source in its acceptance as useful by those over whom it is exercised.
3. Persuasion as a measure of control is supported by the authority generated through effective leadership.
4. Managerial control is exercised through its influence over the informal work groups that are informally integrated to constitute the organization.
5. Workers' response to persuasion and authority is the result of group action that is non-rational in nature.
6. Man's work performance is a function of the socio-psychological climate within and surrounding his work group.
7. Problems of managerial control are best solved through establishing the proper climate for work groups, thus motivating them to exercise self-control.[33]

McFarland, on the other hand, is more explicit and talks about the basic components of human relations. According to his writings, the three basic elements include: the individual, the group (work being completed in group dynamics), and the situation. Others would include: activity (observable behavior of people as they work); interaction (contact between individuals in work situation--verbal and non-verbal); sentiments (internal states of feelings--drives, emotions, feelings, affective states,

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[33]Haire, op. cit., pp. 110-111.

or attitudes); and social system (activity, interaction, and sentiments together).[34]

Perhaps Maslow's hierachy of needs likewise explains another basic bedrock of human relations thought. He spent a great deal of time researching factors affecting motivation. McFarland defined motivation as "the way in which urges, drives, desires, aspirations, strivings (or needs) direct, control, or explain the behavior of human beings . . . for our purpose we can consider them in a general sense as forms of tension occurring within individuals, with resulting behavior aimed at reducing, eliminating, or diverting the tension."[35]

James Latham suggests that there are two basic types of motivation--psychological and physiological. According to his writings, the physiological motives (food, drink, air, protection, sleep, rest, etc.) are more stable and less numerous than the psychological.[36] However, from the work of men like Durkheim, Maslow, Allport, Simmel, Freud, and Mead have come theories of motivation that the human rationalists applied to the organizational setting. A few of the major theories could be as follows.

First, McGregor's participation theory endeavors to get the employee to participate in the workings of the

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[34]McFarland (1st edition), op. cit., pp. 346-352.

[35]McFarland (2nd edition), op. cit., p. 520.

organization in order to satisfy some of his higher-level needs (social and egoistic) rather than seek to provide physiological rewards. His theory (Y) spells out the following points.

1. Expenditure of physical and mental effort in work is as natural as play and rest.
2. External control and the threat of punishment are not the only means for bringing about the effort toward organization objectives. Man will exercise self-direction and self-control in the service of objectives to which he is committed.
3. Commitment to objectives is a function of the rewards associated with their achievement.
4. The average human being learns, under proper conditions, not only to accept but to seek responsibility.
5. Capacity to exercise a relatively high degree of imagination, ingenuity and creativity in the solution of organizational problems, is widely, not narrowly, distributed in the population.
6. Under conditions of modern industrial life, the intellectual potentialities of the average human being are only partially utilized.[37]

Second, Homans, Whyte, Chapple, and Sayles dealt with the interaction theories of motivation. These interactionists considered an organization as a social system. Within this system, as mentioned above, they concerned themselves with activities, sentiments, and communications (verbal and non-verbal interaction). A great deal of research demands dealt with the influences and the characteristics of the informal groups or informal organizations. The study of these natural groupings of people within the

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[37]McFarland (2nd edition), op. cit., p. 532.

work situation was not investigated during the classical period.[38]

Some determinants of informal groups researched included: (1) the location of the individual within the physical setting, amount of face-to-face contact and geographic setting; (2) the occupation that an individual held; (3) his personal interests; and (4) special issues that would arise within the organizational structure.[39] William Scott listed five characteristics or functions of the informal group. First, the informal group acted as an agency of social control (with their norms and pressure to conform) which could be in opposition to the organizational goals. Second, studying or researching the effect of small groups required different technical methods of analysis than those used for formal settings. Third, informal organizations resisted change--a necessity in order to survive. And finally, researchers became interested in the role, characteristics and objectives of the leaders of these informal groups. In short, the human relations movement stimulated a concern for both the formal and the informal groups.

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[38]Scott, op. cit., p. 12.

[39]Ibid., p. 13.

A third theory of motivation was established by Rensis Likert--management pattern theory. He researched perceptions and relationships established between superior-subordinates. These findings, he hoped, would provide an analysis for establishing characteristics of an effective managerial pattern. He discovered that "those supervisors and managers whose pattern of leadership yield consistently favorable attitudes, more often think of employees as human beings rather than as cogs in a machine is a variable related to the attitudes and motivation of the subordinate at every level in the organization."[40]

Fourth, March and Simon suggest a motivational constraint theory--as did Merton, Selzneck, and Gouldner. They pictured a theory of motivational constraints which operated on the intraorganizational decisions and upon a human desire to participate in the organization.[41] The prime purpose of this theory was to consider the individual's satisfaction of desiring a movement in the organizational structure. If such satisfaction is not obtained, the individual would leave the organization and choose an alternative. Thus, management wanted to research human

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[40]McFarland (2nd edition), op. cit., pp. 533-534.

[41]Ibid., p. 534

satisfaction in order to achieve its pre-determined end of the company.

McFarland suggests a fifth type of motivational theory which he calls the "achievement-expectation theory."[42] This theory, as an aspect of the learning theories, relates to motivation by assuming that an inner drive (level of tension) operates in expectation. The followers, or supporters, of this school are Stogdill, George H. Mead, Chester Barnard, Elton Mayo, Fritz Roethlisberger, and William Dickson. Perhaps we could also include the learning theorists such as Tolman, Hull, Skinner, Hilgard, and McGeoch. Likewise, Murray's Thematic Appreception Test (TAT) would be included in this school or theory of motivation.

Many other theories on motivation were developed by the human relationists. McFarland suggests the following:

1. Youngs' interpretation on motivation.
2. Allport's theory.
3. Tinberger's theory.
4. McClelland's theory.
5. Hebbs' theory.
6. Frenkel and Brunswik's theory.
7. Masserman's theory.
8. Freeman's theory.
9. Moore's theory.
10. French's theory.
11. Cattell's theory.
12. Maier's theory.[43]

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[42] Ibid., p. 536.

[43] McFarland (2nd edition), op. cit., pp. 519-550.

These theories, and the entire human relations movement, received some valid criticisms. As with the scientific management period, practitioners misused and oversold research findings and as a result, the human relations movement could not solve the problems it promised. William Scott wrote that the criticism of this school of organizational theory ranged from "human relations is a tool for cynical puppeteering of people, to human relations is nothing more than a trifling body of empirical and descriptive information."[44] However, it did provide some valuable research, but lacked completeness, long-term perspective, and integration of facets of human relations. The revisionists have endeavored to correct these shortcomings.

Revisionists Movement--1955 to 1966

The human relationists never really established a theory--it was never a discipline. It was full of fads and consultants who had no basis for their advice. The followers of the revisionists school believed that neither of the earlier two movements were developed on valid principles and theories. They were too scientific to be applicable for industrial research.

The revisionists encouraged the most recent advances in the methodology of research, especially with the current

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[44]Scott, op. cit., p. 15.

knowledge of statistical and quantitative research methods, and the computers. Most revisionists, however, were not strictly industrial researchers. They stemmed from such areas as: sociology, psychology, anthropology, psychiatry, physiology, economics, political science, statistics, mathematics, and communications. It appeared that they did not directly help companies make money, but added to the discipline.

Warren Bennis coined the term "revisionists" to describe this current group of researchers which include Herbert Simons, Victor Thompson, Chris Argyris, Mason Haire, Rensis Likert, and James March. Their philosophies support the thesis that the only meaningful way to study an organization is to study it as a system. Thus, a strong reliance on empirical research data and conceptual analytical findings.

William Scott proclaimed that there are three main ingredients of the system analysis--parts, interaction processes, and goals. The parts of the system consist of individual motives and attitudes; the interrelated patterns of jobs and personalities in the formal organizational structure; informal group forces which stimulate conformity to specific goals; the importance of roles and status concepts; and the importance of psychological and physiological properties of men.[45]

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[45] Ibid., pp. 16-17.

The interrelation of these parts listed above suggest investigation of the linking processes of the organizational structure. The revisionists have concerned themselves with: communication networks and communication controls; equilibratium of mechanism or parts; cybernetics; and interest in variables in the organization which affect decision-making (for example the work of March and Simmons).[46]

Organizational goals which have been investigated are growth, stability, and interaction. The latter has suggested the importance of a general system theory--universal science of organizational structures. Kenneth E. Boulding concludes that both the general system theory and modern organizational theory study the following points:

1. The parts (individuals) in aggregates, and the movement of individuals into and out of the system.
2. The interaction of individuals with the environment found in the system.
3. The interactions among individuals in the system.[47]
4. General growth and stability problems of systems.

These two differ, however, in that the general theory considers the organization as an integrated whole, whereas the modern or revisionist's theory concerns itself with the human organization. Boulding classifies these system levels

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[46] Ibid., pp. 19-20.

[47] Kenneth E. Boulding, "General System Theory--The Skeleton of a Science," Management Science (April, 1956), pp. 200-202.

as: (1) status structure (anatomy); (2) simple dynamic system (pre-determined necessary motions); (3) cybernetic system (seek equilibrium through self-regulation); (4) open system (self-maintaining system, moves toward the living organism); (5) genetic-societal system (division of labor among cells); (6) animal system (level of mobility, goal-directed behavior); (7) human system (symbol interpretation and idea communication); (8) social system (level of human organization); and (9) transcendental system (level of ultimates and absolutes which exhibit systematic structure but are unknowable in essence.[48]

Chris Argyris has worked with the formal organizational system and has discovered that the effective method to examine an organization is to study it in total. It is stable only if all the components are present at the same time. This total system, according to Argyris, is more than the formal organization. It is a behavioral system composed of four different but interrelated subsystems which produce the following kinds of behavior:

1. Behavior resulting from formal organizational demands ("boss-worship"; or "mother-relationship").
2. Behavior resulting from informal activities (the need for informal activities increases when he experiences anomy between individual's needs and the organizational demands).[49]

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[48] Ibid., pp. 202-205

[49] Chris Argyris, Understanding Organizational Behavior (Homewood, Illinois: The Dorsey Press, Inc., 1960), p. 56.

3. Behavior resulting from each individual's attempt to fulfill his idiosyncratic needs.
4. Behavior resulting from unique patterning for each organization of the three levels above.[50]

Argyris, therefore, emphasized the importance of the personality--physical and mental maturity. He relied on Maslow's primary and secondary needs for support of this thesis. Likewise he discussed the value system which is forced upon an individual within an organizational setting.

Mason Haire, on the other hand, considered the human organism as an independent variable (prime-movers) of the organizational structure. The behavioral scientists usually regarded people as a dependent variable and suggested that "they see people as being affected by organizations, and moved or are manipulated by it . . . however, he views people as independent variables of the organization."[51] He continues to say that "there is no talk here of the 'delegation' of authority and responsibility, but rather an acceptance of the fact that authority and responsibility will be 'assumed' in varying degrees by people of variable capacity to assume them."[52]

Other concepts proclaimed by revisionists could include the work promoted by Herbert Simons on "the new

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[50] Ibid., p. 24.

[51] Haire, op. cit., p. 48.

[52] Ibid., p. 35.

science of management decision-making"; and March and Starr's work on Executive Decisions and Operations Research. The latter suggests the use of quantitative research methodology in marketing (scientific forecasting, pricing, competitive bidding); production (economic-lot-size problems, inventory control, machine load scheduling, and transportation); and administration (size of work force, absenteeism, dividends or reinvestments).

In short, the revisionists have combined the findings of the scientific management and human relations schools into a quantitative method. They examine the organization as an integrated whole.

After examining these organizational theories and structures, one can conclude that the modern organization is a result and a combination of the three main schools of thought presented above--scientific management, human relations, and revisionists. Harold Koontz considered the modern management theories to be an entanglement of theories.[53] The work of Taylor and Fayol provided the foundation; whereas the behavioralists, beginning with the Hawthorne experiment, emphasized the importance of psychology. There are others who view management theory as aspects of sociology, decision-making, mathematics, and

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[53]Harold Koontz, "The Management Theory Jungle," Journal of the Academy of Management, Vol. 4, No. 3 (December, 1961), pp. 173-174.

subsystems. All of these entanglement of theories have directed modern researchers to examine more precisely and universally the social, cultural, physical, and psychological systems of the organizational structure.[54]

Each of these three major schools are designed to achieve one of the following goals or ends: (1) efficiency, (2) effective communication patterns, (3) mobility and satisfaction, (4) power systems, or (5) a combination of these. They have contributed to what Mooney classifies as the following principles of management:

1. Causation of collectionism.
2. Conviction ("belief in the organization").
3. Common goals.
4. Direction and control.
5. Standardization.
6. Authority (by levels; decisions; span of control).
7. Responsibility (clearly defined and understood).
8. Division of labor (specialization, mechanization).
9. Functionization (homogeneity of task).
10. Delegation (by position, function, capacity, authority).
11. Structural unity (formal relationship, sequence of delegation).
12. Personification ("living organism," cohesiveness).
13. Identification and contradiction (conformity, doing what's right, identify with or distinct from the organization.)[55]

Perception of these principles will continue to change in value and degree of importance as they have since the early influences of management and organizational thought.

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[54] Ibid., pp. 173-174.

[55] James D. Mooney, The Principles of Organization (New York: Harper and Brothers Publishers, 1947).

The future developments in automation and computers will continue to affect the above principles.

Thus, when considering the industrial administration in an historical perspective, one discovers a dynamic, ever-changing picture of organization and management concepts. The concepts that have been, and are being developed presently, stem from the three major periods of organizational thought--scientific management, human relations, and revisionists.

Basic Concepts in Previous Organizational Theories

The preceding theories characterize some underlying concepts which form the basis for most discussions related to formal organizations. Each of the three periods possess a distinct personality; appear to have similar goals and objectives; but differ in method of reaching these goals. The following paragraphs spell out some of these underlying dimensions.

The Purpose of Organizational Structure

First, the preceding theorists emphasized that formal organizations have been designed to achieve specific goals through guided interaction. Since this attainment required collective effort, procedures within an organization are structured to coordinate and to guide human activities. For example, businesses are structured to make goods for a profit, and unions are designed to increase bargaining power

with employers. Thus, the goals, the levels of authority, and the procedures to be followed have not been established spontaneously but have been designed in anticipation of necessary ground rules and guidances. Formally established goals have therefore generated the term "formal organizations."

Perhaps it is possible to consider a formal organization as a structure with a broad purpose or plan, which can be subdivided into positions and levels. Position "A" and Position "B" create a structural relationship rather than a relationship simply between Mr. Black and Mr. Jones. Since communication, both verbal and written, is the method for carrying on relationship between these various positions or levels, it is possible to find in any organization a positional communication network. Thus, there exists levels of communication or positions of communication within an organized structure or hierarchy.

The stability of these communication channels determine the efficiency of a formal organization. Lloyd Warner and Norman Martin write in the Industrial Man:

> An effective system of communication requires not only the stable filling of specific positions of different status, but also habitual practices and technical procedures. Failure to follow these procedures with routine persistence in general lends to confusion, lack of coordination, and inefficiency or breakdown of the system. The lines of communication, the system of status, and the associated procedures, though by no means

> constituting "administration", are essential tools of administration and are the most "visible" general parts of it.[56]

The controlling of interaction by key positions, and the stability of status and procedures, are the tangible machinery of a formal organization. Therefore, the purpose of organizational structure is to understand the process by which organizations attain their specific goals.

Effects of Formal Organizations on Human Behavior

Second, the findings of the revisionists and the human relationists have emphasized that formal organizations are affected by the human elements, and that the human structure will be challenged by the rules and procedures of the formal organization. The work of Chris Argyris[57] has clearly emphasized this point. Increased or decreased lines of interaction are a result of the relationship established between the goals and drives of the human element and those of the formal organization. Some organizational procedures have been established without concern of the personnel involved; while other systems have been instigated primarily due to the persons employed. In any event, there is a constant change in human relationships or interaction

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[56]W. Lloyd Warner and Norman H. Martin, Industrial Man (New York: Harper and Brothers, 1959), p. 270.

[57]Chris Argyris, Personality and Organization (New York: Harper and Brothers, 1957).

processes due to the goals of the formal structure, and the goals of the individual.

Two Types of Organizational Structures

A third basic issue emphasized in previous theories suggests the formal and the informal organizational structures operate simultaneously. The early studies of Mayo[58] and the sociometric diagrams of Moreno[59] have emphasized this factor. Studying only the formal channels of interaction will not always provide a complete analysis of the interaction patterns. The informal ones likewise must be considered.

Individuality and Conformity

The earlier theorists attempted to control and force workers to conform to management policies and practices. There was little room for individuality or personal creativity. However, later the human relationists and the revisionists allowed more individual freedom, with some reservation for conformity to management principles. The basic drive theories, as presented by Maslow,[60] and the

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[58]Elton Mayo, The Human Problems of an Industrial Civilization (New York: Macmillan, 1933).

[59]Jacob L. Moreno, "Who Shall Survive?" (Washington, D. C.: Nervous and Mental Diseases Publishing Co., 1934).

[60]Abraham H. Maslow, Motivation and Personality (New York: Harper and Brothers, 1954).

mother-instinct illustrations of Argyris,[61] pointed the way for more consideration of individuality and a decline in strong demands for conformity. Of course, the development of the labor unions has provided more flexibility.

Thus, woven throughout the previously mentioned organizational theories have been arguments related to the importance of individuality and the need to conform for the purpose of accomplishing prescribed and pre-designed management goals.

Position of Supervision Designed to Control

Fifth, the application of organizational theories required the location of individuals in key positions of authority in order to control interaction. Perhaps it could be said that the preceding theories were designed essentially to establish formal methods of control. The formal organization is to be structured to direct human motivation and control collective behaviors of people. This was to be accomplished by individuals possessing faculties of communication through channels of interaction. Without the element of control, the structure would produce unstructured and independent behaviors of individuals. The physical location of individuals in a common vicinity with nothing in common would provide only a air of

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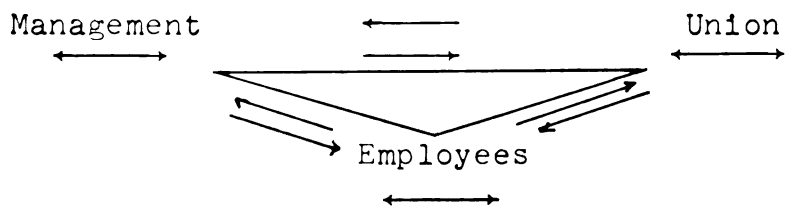
[61] Argyris, op. cit.

uncoordinated behavior; unguided toward the prescribed goals of the formal organization.

Thus, a fifth basic issue of the previous theories suggests it is the duty of management to control elements of behavior if the organization achieves its goals. The methods of accomplishing this would vary according to the leadership, the personalities, the goals, and the channels of interaction.

Three Variables Present in the Organizational Structure

If the ultimate purpose of a formal structure is to achieve optimum worker efficiency and productivity, there are three main variables to be examined. The early practitioners were concerned with interaction between employees and employers, or management and workers. However, with the organizing of the union shops, there developed a three way interaction pattern.



In this interaction process, there exists: (1) an influencing agent, (2) an individual being influenced, and (3) a response being sought by the influencing agent by use of a stimuli. Herbert Kelman has experimented recently with

these three variables in his Process of Opinion Change.[62] Likewise, Berlo[63] researched the interaction process; such as has been dealt with by the practitioners and scholars of organizational theory.

However, rather than be concerned primarily with only three variables, Berlo concluded that in the interaction process there is a Source, a Message (or Stimuli), a Channel, and a Receiver--the SMCR method. Raymond Ross, in his work at Purdue University, discussed the possibility of finding five variables in the interaction process--communicator, message, medium, situational factors, and communicatee.[64] Thus, in each of these theories there is present an influencing agent, a response being sought by the influencing agent by use of a stimuli, and an individual(s) being influenced.

Each level of a formal organization must be concerned with these three variables. The number of levels of authority may vary from one company to another, but the importance of the variables remains the same. The revisionists and the human relationists have been interested in

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[62]Herbert C. Kelman, "Processes of Opinion," Public Opinion Quarterly, Vol. 25 (Spring, 1961), pp. 57-78.

[63]David K. Berlo, The Process of Communication (New York: Holt, Rinehart and Winston, Inc., 1960).

[64]Raymond S. Ross, "A Case Study of Communication Breakdowns in the General Telephone Company of Indiana" (unpublished Ph.D. dissertation, Purdue University, 1954).

learning more about the interaction channels and the key points of control within a formal organization. As was pointed out previously, Chester Barnard theorized that a formal organization is built on individuals who possess limitations--physical, psychological, and functional. And the effectiveness and/or the efficiency of an organization in seeking to reach prescribed goals can be evaluated by the ability to organize a cooperative system. This organized system can be accomplished only through channels of communication; individual willingness to cooperate; and a dedicated effort to achieve prescribed purposes and goals.

Importance of Supervisory Level of Management

Seventh, as illustrated in the above diagram, the supervisory level of management is a key-position in the organizational structure. Perhaps one could agree with Warner and Martin that the supervisor is an individual required to wear two hats.[65] His position is both a part of management and a part of the worker group. If he tends to be identified with both groups, he becomes a "marginal man." He finds himself often caught up in the rapidfire activity of the production processes and responsibilities, but restricted to directives from management and from employees or union. His ability to wear these two hats

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[65]Warner and Martin, op. cit., pp. 304-305.

weighs heavily on the effectiveness of the "cooperative system" described by Chester Barnard.[66] McGregor characterized this individual as an agent of power in whom others higher in the structure have vested responsibility and authority, and in whom subordinates are contracted to accept as the agent of power. The success of his authority requires his dependence upon both his superiors and his subordinates--likewise his equals.[67] Thus, the supervisor plays a vital role in connecting the two major forces in the formal organization.

Importance of Analyzing Interaction Patterns and Directions

Likert visualizes the formal organization as levels of authority held together at key points by communication positions. And the location of these positions determine, in part, the efficiency of an organization in relation to achieving prescribed goals. Previous research which has analyzed patterns have been pioneered by Moreno,[68]

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[66]Barnard, op. cit.

[67]Robert H. Guest, "The Nature of Authority in Perspective," Organizational Change: The Effect of Successful Leadership (Homewood, Illinois: The Dorsey Press, Inc., 1962).

[68]Moreno, op. cit.

Bavelas,[69] and Cartwright and Zander.[70] As emphasized by Bavelas, when the "nature of a task is such that it must be performed by a group rather than by a single individual, the problem of working relationship arises."[71] Through his findings one becomes aware of the intimate relationship between communication, control, and authority. He has relied upon the thoughts of earlier organizational theorists in seeking to determine the communication patterns most appropriate for establishing morale, accomplishing tasks, and developing leadership.

From the preceding pages on organizational theories, it can be noted that each of the three periods were concerned with patterns of interaction; but primarily in the latter two periods.

Within the formal organization, employees learn the value of various positions of social influence which provide rewards and yield punishments. Through their experiences of accepting and rejecting various social influences, they acquire expectations about the usefulness of various sources of information. They rely on sources or positions of authority which provide security and social acceptance. They

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[69]Alex Bavelas, "Communication Patterns in Task-oriented Groups," Group Dynamics, edited by Dorwin Cartwright and Alvin Zander (Evanston, Illinois: Row, Peterson and Company, 1962), pp. 669-682.

[70]Dorwin Cartwright and Alvin Zander (eds.), Group Dynamics (Evanston, Illinois: Row, Peterson and Company, 1962).

[71]Bavelas, op. cit., p. 669.

seek security or protection against a temporary or permanent loss of job and loss of physical functions. They also seek social acceptance of their fellow employees within the formal organization in order to establish a sense of belonging to a group with established norms and goals.

However, the supervisor who has authority over employees cannot always be on the same social level because he must control the activity of others and he must possess the ability to reward and punish. Thus in the formal organizational setting the superivor, and all positions of authority, attempt to provide satisfying morale and cooperative spirit but also productive efforts.

These elements can be examined through patterns of interactions. These patterns can be upward, downward, or horizontal in nature. However, as emphasized previously, the supervisor on the front-line is the key to developing and controlling an organizational system striving to accomplish prescribed company goals. For this reason supervisory interaction patterns are worthy of examination and study.

In short, it can be concluded that the work of the early influences of scientific management, the human relationists, and the revisionists have been concerned primarily with eight basic concepts. It is of immediate concern to analyze some of these elements in an actual organizational setting, with primary emphasis upon examining the front-line supervisor as an influencing agent in

directing union employees toward prescribed company goals. As "marginal men," their daily activities play a vital role in coordinating the interaction patterns between union and management. Some of their interaction will be directed toward their superiors, some toward the subordinates, others horizontally toward other supervisors, and likewise some of their work will not require any interaction.

Thus, the three variables mentioned above play an important role in analyzing the interaction process of front-line supervisors--(1) an influencing agent (supervisor); (2) a stimuli or response being sought by the influencing agent by use of a stimuli (task); and (3) the individual being influenced (source of interaction).

The following section reviews some of the more recent research dealing with supervisory interaction patterns.

CHAPTER II

REVIEW OF LITERATURE

Several research studies have been completed which deal directly with analysis of interaction patterns in formal organizations. Some of these have been specific case studies, whereas others have been related to analysis of human factors affecting communication rather than noting the actual communication patterns themselves. Taking these studies in chronological order, a certain cross-section of such studies can be mentioned.

One of the first reported case studies emerged in 1949 with the work at Esso Standard Oil Company and Johnson and Johnson by Helen Baker, John Ballantine, and John True.[72] They focused their attention on the structure of a communication system, the substance of communication, and the effectiveness of the communication in terms of individual and group attitudes. These three specific topics were noted for management and employees as well as for union officers and union members. As a result of this study, four major conclusions or four basic issues emerged:

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[72]Helen Baker, John W. Ballantine, and John M. True, Transmitting Information Through Management and Union Channels (Princeton, New Jersey: Princeton University, Industrial Relations Section, 1949), p. 13.

A. Clearly defined lines of responsibility and authority.
   1. Formal channels of communications can be strengthened by coordination with informal channels.
   2. By-passing should be avoided if possible.
   3. Staff departments can be used to strengthen the effectiveness of both formal and informal channels.

B. Attitudes encourage a free exchange of information throughout the organization.
   1. If past attitudes have tended to limit the amount of information given out, part of the current program must concern itself with securing a recognition of the new policy in respect to communications.
   2. Success in imparting information is affected by a willingness to listen as well as to talk.
   3. Fear of authority may act as a block to upward and downward communications.

C. Recognition of the interrelationships of management and union communications.
   1. The total framework within which communications are carried on must be taken into account.
   2. Management acceptance of the importance of the union in communications with employees is an essential element.
   3. The union must be willing and able to fulfill its responsibility as a major channel of information.
   4. The first-line representatives of union and management must be well informed and willing and able to transmit information.
   5. Recognition of the common interest as well as the duality in management and union communications is important.

D. Effective techniques.
   1. The selection for each specific subject of the most effective media or channels.
   2. The need to write or speak in terms understood by the group.
   3. The need to present broad subjects in terms of the personal interest of the individual supervisor, steward, or worker.
   4. The value of participation in gaining understanding.[73]

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[73]Dale Arthur Level, Jr., "A Case Study of Human Communications in an Urban Bank" (unpublished Ph.D. dissertation, Purdue University, 1959).

Although this study considered only a few of the varied facts of interaction, it inspired early research in the area of communication analysis in formal organizations.

Raymond Peters[74] used questionnaires and personal visits to twenty-eight companies in the same year to examine what Berlo classified as the SMCR elements.[75] He examined both the mechanical factors and the human factors, as well as the media being used. The general findings pointed out the importance of the human factors in formal organizations.

A more thorough study was completed at Purdue University in 1950 by William Kilgore.[76] He concerned himself with analyzing fifteen specific tasks of foremen in business and industry. For each of these tasks, he asked the foremen to make three separate estimates: (1) the difficulty of the task, (2) the importance of the task, and (3) the importance of communications in performing each task. These questions were asked to 101 foremen and 14 personnel directors. Some of the results from the respondence could be summarized as follows:

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[74]Raymond W. Peters, Communication Within Industry (New York: Harper and Brothers, 1949), pp. 156-162.

[75]Berlo, op. cit.

[76]William Carroll Kilgore, "A Study of Attitudes of Business and Industrial Supervisors Toward Their Speech Tasks" (unpublished M.A. thesis, Purdue University, 1950).

1. The foremen included in this study rated speech as important in twelve of the fifteen jobs.
2. Twelve of the fifteen jobs surveyed were generally rated by the foremen as "difficult but could be done."
3. No significant relationships were found between ratings of the importance of speech in performing the jobs, the importance of the jobs, or the difficulty of the jobs.[77]

A similar study was conducted at Ohio State University in 1951 by Arthur Angrist.[78] With his interest in type and frequency of interaction patterns, he attempted to determine the frequency of communication activities, the importance of each activity in carrying out specific executive duties, and the relative difficulty with which the executives used these communication acts.

Another academic effort was performed in 1953 by Thomas Nilsen at Northwestern University[79] who concerned himself with the ability to define and discover interaction problems, and likewise determine a method to examine each of these. The methods used by Nilsen included interviews with management, supervisory personnel, selected employees, written questionnaires given to employees, and personal

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[77] Ibid., pp. 24-25.

[78] Arthur W. Angrist, "A Study of the Communication of Executives in Business and Industry," Speech Monographs, XX (November, 1953), pp. 277-285. Based on Ph.D. dissertation at Ohio State University, 1951.

[79] Thomas R. Nilsen, "The Communication Survey: A Study of Communication Problems in Three Office and Factory Units" (unpublished Ph.D. dissertation, Northwestern University, 1953).

observations in three office and factory units--the purchasing office, a fiscal office, and a shoe factory. These varying methods of research produced the following fifteen postulates of organizational interaction:

1. Where regular or occasional meetings for discussion among different levels of supervisors are not held, areas of misunderstanding among such levels of supervisors can be assumed to exist.
2. Where certain problems important to individuals, such as promotions, are not freely discussed with these individuals, they will participate less freely and adequately in discussion of other more objective problems, such as production.
3. The assumptions made about people having certain classifications often impedes effective communication with them. For example: The assumption on the part of a supervisor that his superintendent ought to know or does know what is going on in the shop frequently keeps the supervisor from informing the superintendent of events important to him.
4. Unless deliberate steps have been taken to discover communication problems within an organization many such problems exist of which management and supervisors are unaware. This was postulated even where management is enlightened and sensitive to the human factor.
5. Effective discussion is not automatic when a group of people are brought together for discussion purposes. Effective discussion is the result of carefully evaluated experiences and training.
6. Where there is little or no social talking within a work group the supervisor of that group is not sufficiently sensitive to human motivation for the most effective leadership.
7. The less well defined a supervisory position is and the less secure he feels in his position the less effective will be his communication both with his employees and his supervisors.
8. The fact that management thinks that employees feel free to make suggestions is not indication that employees do feel free to make suggestions.
9. The presence of a suggestion box and stipulated permission to make suggestions does not result among employees in a feeling of freedom to make suggestions.

10. The practice of avoiding the discussion of touchy issues impedes the discussion of less touchy issues. Another way of saying this is that problems cannot be avoided.
11. Where group meetings are called only when a pressing issue has arisen, the effectiveness of such meetings is reduced.
12. Where an intense attitude characterizes one member of a work group, this attitude tends to be communicated to or to pervade an entire group.
13. Where social talking within a group is encouraged, and is relatively abundant, fewer resentments will exist within the group than where such talking is inhibited.
14. Training in the skills of communication tends to sensitize individuals to human motivation and human relations.
15. The with-holding of information from employees by a supervisor is often a need-satisfying pattern of behavior. Being more in the know than someone else is ego-satisfying.[80]

Several of these postulates will be examined in the following pages. His emphasis upon the desirability to utilize case studies of individual organizations has likewise stimulated efforts for this study.

Raymond Ross of Purdue University accepted Nilsen's suggestion and attempted to take a limited case study of the General Telephone Company of Indiana, Inc. to find the answers to the following four questions:

1. To what extent, in the opinion of the supervisors, do the basic, written communications (company publications) assist them in their supervising?
2. How can the value of these media be increased?
3. What are the supervisors' attitudes and practices as far as their primarily oral, day-to-day communications are concerned?

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[80] Ibid., p. 416.

4. Are any of these attitudes and practices pervasive enough to indicate possible techniques for locating areas of communication weaknesses or breakdowns among Company supervision?[81]

He attempted to answer these questions by sampling a total population of 108 supervisors--38 received mailed questionnaires and 29 supervisors were interviewed personally. With this small sample, the results cannot be generalized to other supervisors in similar companies. Likewise, his method of categorizing "down-oriented" and "up-oriented" supervisors was ambiguous and created some analytical problems. He writes:

> . . . a supervisor who thought that communications with subordinates were most important, most frequent and that he was most effective in such communications, could be categorized as "down-oriented". A supervisor who thought that communications with superiors were most important, most frequent and his most effective communications, could be categorized as "up-oriented".[82]

He did not distinguish the point of initiation or the point of reception, but only from the standpoint of "direction" (which might include listening as well as talking). In any event, Ross's conclusions were:

1. Most of the supervisors in the General Telephone Company of Indiana, Inc. believe that the Company publications, Tele News, Management Bulletin and General Instructions have been of some value to them in their work as supervisors.

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[81] Ross, op. cit., p. 37.

[82] Ibid., p. 39.

2. Readability and human interest scores for all of the written media except the Tele News were low.
3. As far as the distribution of the five predominant types was concerned, in no case was a significant difference found between departments or districts.
4. The mailed survey and interview survey methods produced essentially the same results as far as typing the supervisors on the basis of questions regarding "frequency of media" used and "directional orientation" were concerned.
5. About half of the supervisors used oral communications almost all of the time. The other half used oral and written communications equally.
6. Most of the supervisors were "down-oriented"; very few were "up-oriented".
7. There is no interaction between the most frequent media of communication used by a supervisor and his direction of orientation.
8. There appeared to be enough pervasive features and characteristics of day-to-day, primarily oral communications to suggest a theory for locating communication breakdowns.[83]

In the same year as Ross, Thomas Dahle[84] directed his research efforts to the "channels" of interaction: in an industrial situation; a business location such as Spiegel, Inc.; and a classroom experiment. In each of these experiments, Dahle measured the relative effectiveness of five methods of transmitting information: (1) oral only, (2) written only, (3) combined oral and written, (4) bulletin board, and (5) grapevine only. Four specific questions were investigated:

1. Which of the five methods listed above would produce the best results as measured in terms of correct answers to test questions?

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[83] Ibid., pp. 175-178.

[84] Thomas L. Dahle, "An Objective and Comparative Study of Five Methods of Transmitting Information to Business and Industrial Employees" (unpublished Ph.D. dissertation, Purdue University, 1953).

2. What differences in the results can be attributed to the time of presentation of the material?
3. How does length of service affect results obtained?
4. How do results obtained from a business and industrial population compare or contrast with results obtained from a student population?[85]

According to his analysis several conclusions could be drawn. First, the combination of oral and written communication was the most effective, with the oral only, written only, bulletin board, and the grapevine following in descending order. Second, the time variable was not a significant factor in determining the amount and accuracy of the information transmitted. Third, older seniority employees scored higher on each of the five methods. And fourth, the results from each of the locations were similar.

Several research studies emerged in 1955 as a result of the pioneering done on the interaction patterns in formal organizations which were discussed above. Darrell Piersol[86] utilized the findings of Kilgore on the basic tasks of a foremen, the techniques used by Ross in a case study, and used patterned (structuralized) interviews and "shadow technique" (following subjects around for a full working day, noting the time spent carrying out their

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[85] Ibid., p. 1.

[86] Darrell T. Piersol, "A Case Study of Oral Communication Practices of Foremen and Assistant Foremen in a Mid-Western Corporation (unpublished Ph.D. dissertation, Purdue University, 1955).

duties) for determining how much of a work day a foreman spends talking and/or listening and how much time he spends in oral communication in performance of specified tasks related to his position.

The general conclusions Piersol reached after dealing with his 16 supervisors were as follows:

1. The oral communication activities carried on within the company by foremen and assistant foremen included interviews, conferences, social conversations and speeches.
2. The foremen and assistant foremen had very few oral communication activities representing the company in interviews, conferences, or speeches outside of the plant.
3. The oral communication activities carried on by the foremen and assistant foremen in the community after working hours consisted mainly of social conversation and interviews.
4. The foremen and assistant foremen felt that the majority of their communications "up," "down," and "horizontal" were oral. Approximately ninety to ninety-five percent of their daily interactions were oral and from five to ten per cent of their interactions were written.
5. The foremen and assistant foremen in this company had received a negligible amount of training in oral communication in school, outside of plant training, and in company training programs.
6. Half of the foremen and assistant foremen in this company indicated that they generally heard about company policy, changes in regulations, or company lay-off of workers through rumors (grapevine) before they received the information through regular company channels.[87]

Additional conclusions were drawn after the "shadow technique" was used. First, approximately half of the supervisor's daily activities required some form of oral

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[87] Ibid., pp. 88-90.

communication interaction (speaking or listening). Second, the task these foremen spent the most time in oral interaction was in the maintaining of quality and quantity of production.[88] However, Piersol like Ross, failed to approach the foreman as a receiver as well as a sender. Nevertheless, from this study it can be gleaned that foremen will differ as to the amount of interaction and the media used for interaction in accordance to the task being performed.

Dallis Perry and Thomas Mahoney[89] examined five firms in order to determine the correlation between morale, information, and communication. As a result of an information test and a short form of the Industrial Relations Center Triple Audit Attitude Scale, they concluded:

> The . . . results provide practically no support for the hypothesis that there is a relationship between an employee's attitude toward his company and how much he knows about his company. They do not, however, indicate that there is no relationship between morale, and communication effectiveness.[90]

In relation to the SMCR theory of communication, this study emphasizes primarily the source and the receiver, plus the content of the message.

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[88] Ibid., pp. vi-vii.

[89] Dallis Perry and Thomas Mahoney, "In-plant Communications and Employee Morale," Personnel Psychology, 8 (Autumn, 1955), pp. 339-346.

[90] Level, op. cit., p. 24.

At about the same time as Piersol, Perry, and Mahoney studies were being performed, Edwin Fleishman[91] (along with Harris and Burtt) was investigating characteristics of the communicator or source. In his leadership and supervision findings, Fleishman discovered a questionnaire that measured the "Structure" and "Consideration" dimensions of supervisory leadership. "Structure" is the tendency to initiate ideas, to plan, or to direct a group toward organizational goals. "Consideration," on the other hand, reflects the degree to which the supervisor emphasizes rapport--his warmth or sensitivity to subordinates' feelings and his emphasis on two-way communication. This initial study in 1955 has become a common test for selecting supervisory and management personnel. Since the Leadership Opinion Questionnaire does deal with characteristics of an influencing agent in the formal organization, and likewise deals with interaction, it will be a source of measurement for this study.

The importance of analyzing interaction patterns in industrial situations was further promoted by the work of Frank Funk at Purdue University in 1956.[92] His investigation was concerned with two main purposes: (1) to examine

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[91]Edwin A. Fleishman, Edwin F. Harris, and Harold E. Burtt, Leadership and Supervision (Columbus: Bureau of Educational Research, Ohio State University, 1955).

[92]Frank E. Funk, "Communication Attitudes of Industrial Foremen As Related To Their Rated Productivity" (unpublished Ph.D. dissertation, Purdue University, 1956).

certain attitudinal dimensions concerning the communication activities of front-line supervisors; and (2) to test for significant differences between higher and lower production-rated foremen in these communication attitudes. The two different attitude questionnaires were constructed to measure foremen's attitudes toward: (1) communicating and the subject matter of communications, (2) workers, (3) the "boss" or immediate superior, and (4) higher management.

The result of his research produced the following conclusions:

1. As compared with lower production foremen, higher production-rated foremen have more favorable attitudes toward communication aspects of their job, toward their workers and communicating with these workers.
2. No statistically significant differences were found between higher and lower production-rated foremen in their attitudes toward their immediate superior, and in their attitudes toward higher management.
3. When foremen were classified by departments, these department groups were not found to differ significantly in mean communication attitude scores on any of the four scales.
4. The degree of the relationship between communication attitudes and productivity was significantly different from one department to another.
5. Content analysis of items which discriminated most between higher and lower production-rated foremen suggested that higher rated foremen are more communication-minded, have more favorable attitudes toward workers, and are more confident and understanding.[93]

The general conclusion to be drawn from the above comments would be that certain communication attitudes of industrial foremen are related to their rated productivity.

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[93] Ibid., pp. x-xi.

Another case study was conducted by Dale Level[94] in an urban bank. The purpose of his study was to investigate human communications (primarily oral) in the following areas:

1. Basic communication attitudes of management.
2. Communication channels and organization structure.
3. The grapevine.
4. Techniques of oral communication as used in typical banking situations.
5. Knowledge of bank policies and practices by the employees.
6. The level of satisfaction of bank personnel with company communication practices.
7. Reactions of both customers and non-customers toward the bank's "external" communications.[95]

Through a series of interviews, observations, and questionnaires he concluded the following:

1. Evidence did not substantiate the hypothesis that management must have well defined communication policies in order that the internal communication program be a reasonably successful one.
2. In spite of a fairly effective communication program, the employees' information about bank practices and policies was only mediocre. There was widespread ignorance, for example, about such matters as insurance benefits.
3. The hypothesis was confirmed that, by and large, employees prefer the oral and more personalized media of communication to the written or impersonal.
4. Problem areas in internal communications were apparently most likely to occur in (a) stimulating "upward" flow of ideas, suggestions, and complaints; (b) handling reprimands and complaints; and (c) appraising job performance.
5. No significant correlations were discovered between level of information and employee morale, or between level of information and communication satisfaction. A moderate correlation was found between communication satisfaction and morale.

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[94] Level, op. cit.

[95] Ibid., p. viii.

6. An effective internal communication system is probably prerequisite to, but certainly no guarantee of, business success.[96]

From Level's study it is possible to glean information about the importance of the source of communication, the content of the message, the channel used, and the recipient of the message. In each case there is an influencing agent, stimuli creating a response, and a recipient being influenced.

A more recent study has been completed by Herbert Simons.[97] Like the research of Frank Funk with high and low-rated production foremen, Simons attempted to test the significant difference between "more successful" and "less successful" hotel supervisors in relation to selected communication attitudes, skills, and practices. And secondly, determine the attributes of communication of the entire group of supervisors.

He found that successful and less successful supervisors did differ in characteristics of communication skills and attitudes. However, he did not concern himself with the direction of the communication nor attempt to examine specific tasks.

The above studies have dealt with various dimensions and variables underlying organization structures. William

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[96] Ibid., pp. x-xi.

[97] Herbert William Simons, "A Comparison of Communication Attributes and Rated Job Performance of Supervisors in a Large Commercial Enterprise" (unpublished Ph.D. dissertation, Purdue University, 1961).

Eddy[98] attempted to analyze the dimensions of organizational behavior to determine elements which provide principles of effective administration. One part of his perception study dealt with the investigation of variability in organizational performance. He attempted to capture the supervisors' reason for variability in departmental performance and also their reports of the kinds of information they used to evaluate this performance. The findings in relation to specific tasks performed, paralleled those of Piersol and Kilgore. And likewise, emphasized that management and supervisors do not perceive tasks and methods of accomplishing specific tasks in the same manner.

John Lawrie[99] carried this point further with his investigation of perception of leadership characteristics. He combined the findings of Eddy and Fleishman in order to note any significant difference between: (1) supervisors and their superiors, (2) supervisors and their subordinates, and (3) supervisors' perceptions and evaluations of their characteristics as a leader. He attempted likewise to categorize the amount of time foremen spend on each daily task. However, he did not attempt to distinguish between high and low rated production foremen, nor did he

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[98]William B. Eddy, "Dimensions of Organization Behavior" (unpublished Ph.D. dissertation, Michigan State University, 1962).

[99]John Lawrie, "Evaluation of Role Occupants as a Function of Role Expectation Reciprocity" (unpublished Ph.D. dissertation, Wayne State University, 1963).

attempt to calculate the amount of time spent interacting with superiors, subordinates, and other foremen.

Therefore, in the above review of literature the following major points take on significance for the following case study:

1. Previously investigated case studies were often general in nature and were not limited to analysis of specific supervisory tasks.
2. There were weaknesses in determining the high and low rated foremens' patterns of interaction in relation to specific tasks.
3. Management's evaluation and perception of the productive efforts of supervisors were not directly compared to specific tasks.
4. Importance of specific tasks were not compared to the amount of time devoted to each.
5. The percentage of written and oral supervisory communications were not calculated in relation to interaction with subordinates, superiors, and other foremen.
6. Leadership ratings from a reliable test were not compared to the management evaluation of a foreman or supervisor.

CHAPTER III

PURPOSE AND BASIC QUESTIONS

In Chapter I the trends of organizational theories were explored by examining the three basic movements. Likewise, the underlying principles of these theories were spelled out and previous research related to these basic concepts were then cited in the next chapter. Each of the research studies was examined for: basic questions being investigated; general conclusions; and major limitations of the study.

The basic purpose of the proposed case study stemmed from the research cited above, with primary emphasis upon analyzing the interaction[100] patterns for ten specific tasks of foremen in an industrial setting. Secondly, the expected patterns by the foremen's immediate superiors were also studied.

Using the SMCR theory of Berlo, the proposed case study concerns itself with the source, the message, the channel, and the receiver. These four variables can be identified in the following manner:

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[100]The term "interaction" as used in this dissertation refers to the written and/or verbal contact made between foremen and their superiors, subordinates, and other foremen.

Source = foremen/production supervisors
Message = ten specific tasks
Channel = written or oral interaction[101]
Receiver = superiors/subordinates/other foremen/no interaction required

In order to perform their weekly functions efficiently, the foremen must be concerned with the above variables. For each of the ten tasks, they must interact with one or more of the "receivers"--through one of the two channels.

These variables affect the productivity of all of the foremen and likewise the expectations of the production supervisors. In order to analyze these interaction patterns more closely, a comparison will be made among all of the foremen and the expected patterns of their immediate superiors. And secondly, the high and the low productive foremen will be examined. These comparisons will be made in relation to the following categories:

1. Amount of time spent on each task per week.
2. The importance of each task in performing efficiently as a foreman.
3. The amount of time spent interacting with superiors.
4. The amount of time spent interacting with subordinates.
5. The amount of time spent interacting with other foremen.
6. The per cent of interaction which is written to each of these recipients.
7. The amount of time requiring no interaction each week.

Thus, for ten specific tasks, the expected patterns of interaction can be compared to the actual. These

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[101]The interpretation of this term utilizes only a part of the definition provided by Berlo who indicates channel choices may encompass any or all of the five senses.

communication networks will be examined from the standpoint of: direction of interacton for each task; the channels used to complete the interaction; and the importance of each task in relation to the amount of time devoted to each.

Considering the above variables in this case study, several basic questions will be explored. The following are designed to contribute toward the purpose of examining the interaction patterns of industrial foremen.

1. Is there any correlation between the foremen's perceived rank order of importance of the ten tasks and those of the production supervisors?

2. Is there any correlation between the high and low productive foremen as to their perceived rank order of importance of the ten tasks in performing their weekly activities?

Perception studies have been completed in industrial settings, such as the work cited previously by John Lawrie. From the results of his work, and considering the descriptive characteristics of the sample, it is predicted there will be a high correlation between the foremen and the production supervisors. Only one of the foremen was not promoted from rank-and-file; as were the production supervisors and manufacturing superintendent. Therefore, with the same schooling it would appear that their perceptions of tasks values would be correlated.

A similar result would be predicted between the high and low productive foremen, although there should be some disagreement considering that their interaction patterns would differ if their productive outputs differ.

The above questions generate additional areas of investigation. After comparing the actual and expected rankings of task importance, a correlation can be made between the importance of the rank and the time spent on each task each week.

3. Is there any correlation between the foremen's rank order of task importance and the amount of time spent on each task per week?

4. Is there any correlation between what the production supervisors expect the foremen to consider important and the amount of time spent on each task per week?

5. Is there any correlation between the high and low productive foremen in rank importance of tasks and the amount of time spent on each task per week?

Since the foremen and the production supervisors have experienced the same backgrounds, the correlation should be relatively high. However, there should be a difference between what the foremen consider and what the production supervisors expect with tasks of lesser importance. Of the ten tasks, perhaps three or four will receive high task ranking and occupy a high per cent of the work week. In relation to these tasks, the correlation should be high.

Both the high and low productive foremen should correlate highly between rank importance of the task and the time spent on each task because they possess similar backgrounds and tend to perceive things as they have been in the past.

The above questions have dealt with the ranked importance of tasks and the amount of time devoted to these activities each week. However, some predictions should be made about the interaction patterns required to perform these tasks.

6. What is the relationship between the foremen's patterns and the production supervisors' expected interaction patterns with superiors, subordinates, and other foremen?

7. What is the relationship between the interaction patterns for these ten tasks for high and low productive foremen?

These interaction patterns,of course, can be examined for each task, and for the combination of all the tasks. As a whole, it would appear that the production supervisors would expect their foremen to interact more with superiors and other foremen than the foremen themselves consider beneficial. They would tend to show more dependence on themselves and contact with subordinates.

The difference between high and low productive foremen would likewise center upon the importance of being independent. The high productive foremen should be concerned more with the task and his self-evaluations than the low productive foremen. Therefore, they should be more independent and less dependent on superiors and other foremen throughout their weekly activities.

Not only the interaction patterns will be of concern, but also the method, or channel, of interacting is important.

8. What is the relationship between the foremen and the production supervisors as to the method of interaction with superiors, subordinates, and other foremen?

The foremen often find themselves rushed for time to perform various activities and thus depend on the oral channels of communications. The Piersol research study cited earlier found that approximately ninety-five per cent of the supervisors' daily interactions were oral and only five per cent were written. Similar results would be predicted in this case study. However, the production supervisors often consider the written method of interaction more productive. Documentation of procedures, instructions, and problems lend a more organized and productive operation. Administrative positions, such as those occupied by the production supervisors, often require written communication. Therefore, it is predicted that they would expect their foremen to follow the same method.

A similar comparison should be made between the high and low productive foremen.

9. What is the relationship between high and low productive foremen as to the method of interaction with supervisors, subordinates, and other foremen?

A general statement about the method most used by the high and low productive foremen would not appear logical, especially with three directions of communication involved. There should be a difference between the written and oral method of interaction in accordance to the direction of contact and the tasks being examined.

In the above paragraphs it was predicted that foremen would be more independent than expected by their production supervisors. This independence should be pronounced between the high and low productive foremen.

10. Do the high and low productive foremen agree on the amount of weekly activities not requiring any interaction?

As a whole, it is predicted that the high productive foremen will be more dependent upon their self-evaluation and experience to provide sufficient information in order to perform these ten tasks. The low productive foremen, on the other hand, will be more dependent on someone else to supply the necessary support. Therefore, the high productive foremen should disagree with the expected patterns of their production supervisors and be more independent.

The evaluation of foremen characteristics has often plagued their immediate supervisors. What variables determine how productive they will be? What objective methods are available for predicting supervisory potential? These questions were asked in this study in hopes of discovering a means of evaluating objectively the foremen in the same manner as their superiors.

11. What is the correlation of the manufacturing superintendent's rating of foremen with their scores on the "consideration" and "structure" scales of the Leadership Opinion Questionnaire?

The Leadership Opinion Questionnaire which was developed by Fleishman has often been used as a predictive instrument for supervisory potential. Therefore, it will be used in this

study to determine the correlation between the productivity rating of each foreman offered by their supervisory superior and the scores they receive on the "structure" and "consideration" scales. It is predicted that this test will be a good indication since the foremen and their supervisory superiors have followed the same training and experienced similar positions. If a high correlation occurs, this questionnaire can be an instrument for evaluating foremen at this industrial location.

Thus, the basic questions of this proposed case study are designed to evaluate the interaction patterns of foremen--both high and low productive foremen--and those patterns expected by their production supervisors. This requires examination of the characteristics of foremen, evaluation as to where they spent their time in relation to ten specific tasks, and a summation of interaction patterns used to perform these tasks. The following chapter outlines the research site, the sample to be used, and describes the research procedures to be instigated.

CHAPTER IV

RESEARCH PROCEDURES

Research Site

The research for this design was carried out in a medium-sized machinery manufacturing plant located in a midwestern community. Products are distributed nationally with about 18% of the product sales being sold to foreign countries. Mixed product lines have forced this company to be flexible in handling a variety of jobs. Due to the size of the plant in comparison to others in its surrounding community, it has experienced pressures from its union to increase wages and fringe benefits. Therefore, the company has been forced to keep closer supervision, and thus created some supervisor-employee relational problems.

The eight hundred employees of this organization are divided into four major divisions--finance, sales, engineering and manufacturing. Within the manufacturing phase of the operation there are eleven major departments. The number of workers in these departments will range from ten to forty. However, the average supervisor is responsible for approximately twenty men--in a fairly consolidated area (see organizational chart, Figure 1).

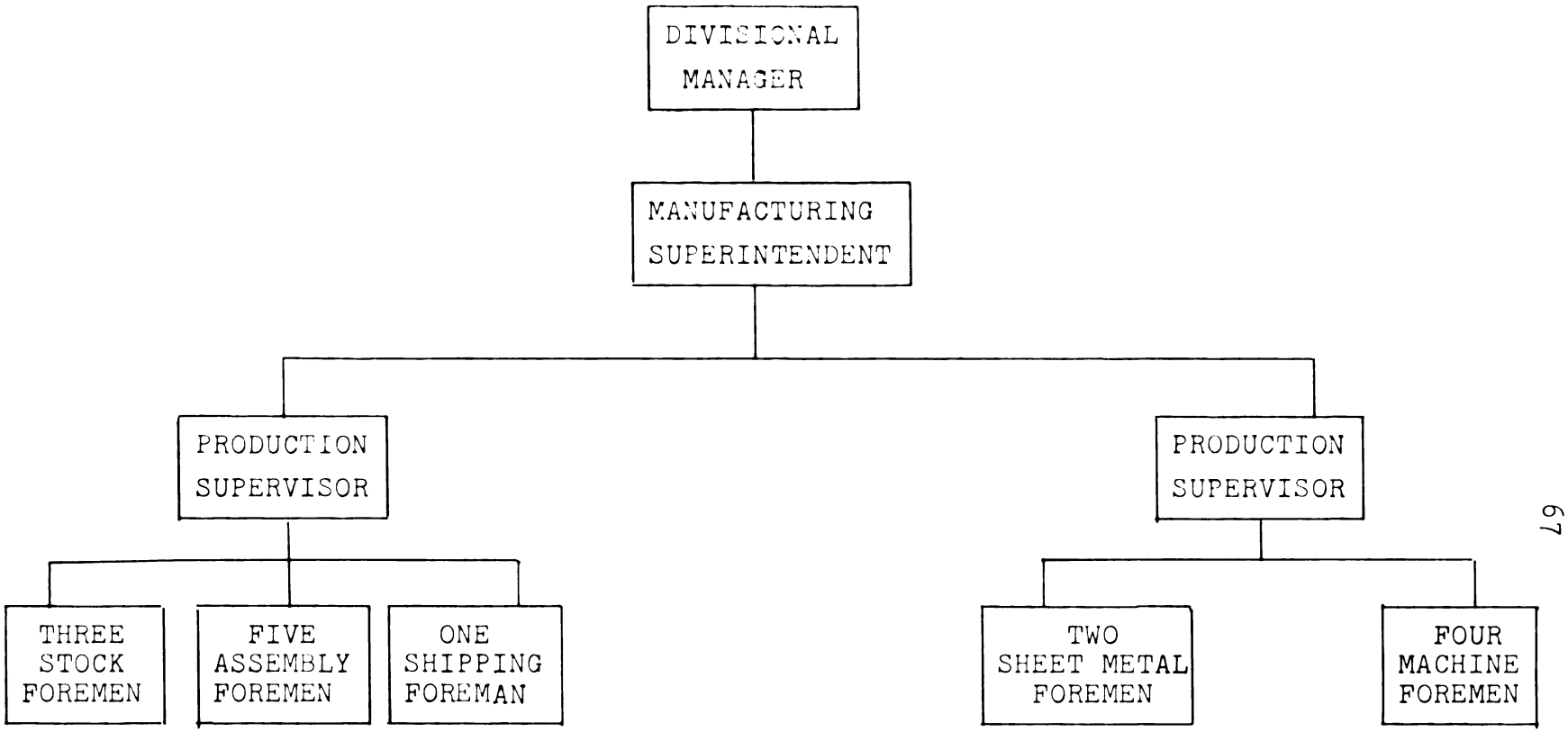

Figure 1.--Organizational Chart

As illustrated in the organization chart, there are four levels of authority within the manufacturing area of this company--Division Manager, Manufacturing Superintendent, Production Supervisors, and Foremen. Since two departments in this factory do not have four levels (Maintenance and Inspection Departments), this sample will be limited to 89% of the total hourly factory employment on the day shift. Thus, the sample for this proposed investigation will be drawn from a population of 305 out of a total day shift population of 344 manufacturing employees.

Included in this chosen population will be fifteen foremen, who constitute the fourth level of authority. The third level consists of two production supervisors. Their responsibilities are divided so that one is responsible for the Steel Shop and the Machine Shop; and the remaining areas come under the leadership of the second production supervisor. The second level of authority is the manufacturing superintendent who is responsible for the entire manufacturing phase of this company. At the first level of authority, or the highest level, is the Divisional Manager. He is responsible for all the major divisions of this company--i.e., Finance, Sales, Engineering, and Manufacturing.

Only three levels of authority will be included in this case study of interaction patterns. The Manufacturing

Superintendent will evaluate or rank the productivity of the foremen. The two production supervisors will express their expectations of their immediate foremen in relation to interaction patterns for ten specific tasks. And the foremen will be examined for estimates as to their actual method of interaction, their direction of interaction, and their amount of time spent on these specific tasks.

Since this is a case study, the number in the sample will be small and thus will limit generalization. Fifteen foremen and two production supervisors will constitute the sample to be investigated for interaction patterns for ten specific tasks. Specific information as to their seniority with the company, length of service as a supervisor, number of people they are directly responsible for, academic background, and age provide a description of the sample to be used.

Description of the Sample

Seniority

Twenty per cent of the foremen have worked with this company for less than ten years. Approximately sixty-five per cent of the fifteen foremen used in this sample have been employed by this company between ten to thirty years, and the remaining foremen have been employed over thirty years. The following table illustrates this distribution.

TABLE 1.--Seniority of the foremen.

Seniority	Per Cent
Less than five years	6.7
Five to nine years	13.3
Ten to nineteen years	40.0
Twenty to twenty-nine years	26.7
Thirty to thirty-nine years	13.3

One of the production supervisors has been with the company seventeen years. This includes seniority with another company purchased by the operation being researched. The second production supervisor, however, has been employed at the present location only fifteen years. Thus, the production supervisors average sixteen years of service with the company.

Length of Service as Supervisor

Even though sixty-five per cent of the foremen had been employed between ten to thirty years with the company, forty per cent of them have been foremen less than five years. Approximately seventy-three per cent have been supervisors or foremen for less than ten years, but ninety-three per cent record less than twenty years of foremen background. The following table shows this distribution.

TABLE 2.--Length of time in foreman position.

Length of Service as Foreman	Per Cent
Less than five years	40.0
More than five years; less than ten	33.3
More than ten years; less than twenty	20.0
More than twenty years	6.7

The production supervisors, on the other hand, average eleven years of supervisory experience.

Number of Employees for Which Responsible

In a survey of the entire manufacturing operation it was noted that the average foreman was directly responsible for twenty-two to twenty-five employees. This same statistical average holds true in the sample chosen for this study. Forty per cent of the foremen have less than twenty employees to manage. Sixty-six per cent have less than thirty; and approximately ninety-three per cent control the activities of less than forty workers. The table below lists the percentages in more detail.

TABLE 3.--Number of people a foreman supervises.

Number Responsible For	Per Cent
Less than twenty people	40.0
Twenty to twenty-nine people	26.7
Thirty to thirty-nine people	26.7
Forty or more people	6.6

The production supervisors, on the other hand, are responsible directly for their respective foremen. One of these men assumes the responsibility of six foremen, while the other takes charge of the remaining nine foremen.

Academic Background

Of the fifteen foremen in this sample, only one did not work his way through the ranks into the supervisory classification. Since most of the hourly workers have not completed college or graduate work, it would be expected that likewise the foremen in this sample would have only high school educations. Forty per cent of the foremen did not complete high school--completed eleven grades or less. And eighty-seven per cent did not reach the college level of education. The following table illustrates specifically the description of the educational status of the fifteen foremen.

TABLE 4.--Education of the foremen.

Level of Education Completed	Per Cent
Less than eleventh grade	40.0
High school diploma	46.7
Undergraduate work in college	6.7
More than four years of college	6.6

The production supervisors, on the other hand, can be characterized in the following manner. Both of these

men hold a high school education, but one has continued on a part-time basis to the college level.

Age

It is interesting to note that every foreman is over thirty years of age. This is probably due to the fact that the average foremen worked an average of ten years before being considered for supervisory level of employment. Fifty-three per cent of the foremen are between the ages of thirty and forty-five. Approximately thirty-two per cent of them are between forty-five and fifty-five years of age, while the remaining thirteen per cent are over sixty years of age. The chart below illustrates the distribution.

TABLE 5.--Age of the foremen.

Age	Per Cent
Less than thirty-five years of age	26.7
Thirty-five to forty-five years of age	26.6
Forty-five to fifty-five years of age	32.4
Over fifty-five years of age	13.3

The production supervisors, on the other hand, are the same age and would fall into the thirty-five to forty-five age category. Therefore, they would be in the same age bracket as the average foreman.

From the above figures it can be concluded that the average foreman in this sample has been employed by this

company less than twenty years, with less than ten years of supervisory experience, with a high school education, responsible for twenty-five people, and approximately forty-five years of age.

The two production supervisors support similar credentials. Their average length of employment was sixteen years, with eleven years of supervisory experience, a high school education, and thirty-six years of age.

Thus, the above statements describe the characteristics of the sample used in this design at the chosen research site.

Approach to the Analysis

The basic questions listed previously for this analytical case study are based on the following variables. First, descriptive data in relation to the fifteen foremen used as subjects is important in order to analyze the source of interaction. Second, the message or content of the interaction requires the use of Kilgore and Piersol's research on weekly tasks of manufacturing foremen. The ten specific tasks to be used in this study provide the "message" variable.

Third, as emphasized by Berlo, not only the source, and the message are important in an interaction process, but also the "channel" and the "receiver." The channels of analysis for performing the ten specific tasks to be

examined were categorized as written and oral. And finally, these interaction patterns were examined as to the receiver of the interaction. This likewise refers to an analysis of the direction of interaction for carrying out specific tasks and the channels used in order to accomplish them.

The "receiver," thus, could refer to the foremen's superiors, subordinates, other foremen; or the task may not require any interaction.

In order to examine these above variables, the following procedures were used. Arrangements were made with the Manufacturing Superintendent to have the fifteen foremen meet in groups of five in a conference room to fill out the required questionnaires. The purpose and procedures were mentioned to the Divisional Manager and the Manufacturing Superintendent prior to this time. Both of these individuals were informed as to the specific purpose of the study, the tests to be used, and the questionnaires to be filled out. No other employee received information about this study, primarily due to the employment of the researcher with the company and his familiarity with the foremen involved. Thus, the foremen were told to report to a conference room to fill out a questionnaire on supervision.

A graduate student at Michigan State University was asked to meet with the foremen and explain the procedures of filling out the various questionnaires and tests. He

explained that this was part of his graduate research at the University. This method was used to disguise the actual researcher (an employee of this company and likewise known by all of the foremen). It required approximately thirty to forty minutes for the foremen to fill out the necessary information.

The questionnaires were enclosed in an envelope, pre-marked as to the recipient. The name of the foreman was clipped to the envelope when the foreman received it. He was told not to sign his name on any sheet and that the slip with his name was to be removed. Since the envelopes were coded inside, it was possible to determine the exact writer of the questionnaire without the foremen being aware.

Five pieces of material were placed inside the envelope. First, a general cover letter was included to inform each foreman of the purpose of the research, of the necessity for making realistic estimates as to his weekly interactions, and of the use of the material at Michigan State University. This information was read orally by the graduate student administering the questionnaire.

The second part of the questionnaire included the Fleishman Leadership Opinion Questionnaire. This questionnaire measures two independent variables or dimensions of supervisory leadership: structure and consideration. The

"structure" scale measures the tendency to initiate ideas, to plan, or to direct a group toward organizational goals; while "consideration" reflects the degree to which the supervisor emphasizes rapport. This would refer to his sensitivity to subordinates' and superiors' feelings and his emphasis upon two-way communication.

Questions on the "structure" scale were asked in the following manner:

1. Put the welfare of your unit above the welfare of any person in it.
   ___Always
   ___Often
   ___Occasionally
   ___Seldom
   ___Never

2. "Needle" persons under you for greater effort.
   ___ A great deal
   ___ Fairly much
   ___ To some degree
   ___ Comparatively little
   ___ Not at all

3. Let the persons under you do their work the way they think is best.
   ___Always
   ___Often
   ___Occasionally
   ___Seldom
   ___Never

Examples as to the "consideration" scales were likewise worded in the same manner in order to determine how frequently a foreman feels he should do what is described in each item.

1. Ask for more than the persons under you can accomplish.
   ___Often
   ___Fairly often
   ___Occasionally
   ___Once in a while
   ___Very seldom

2. Refuse to compromise a point.

___Always
___Often
___Occasionally
___Seldom
___Never

3. Change the duties of persons under you without first talking it over with them.

___Often
___Fairly often
___Occasionally
___Once in a while
___Very seldom

Norms for each of these scales have been established by the Science Research Associates for such categories as: general supervisory personnel, first line administration clerks, college seniors, executives, engineering supervisors, educational supervisors, and foremen. This leadership questionnaire is being used currently for selecting supervisory and management personnel; for evaluating management training programs; for assessing "managerial climate" in performance; and for use with supervisory trainees as a self-development tool. Therefore, a variety of uses are available with specific norms for evaluation and analysis.

Fleishman's questionnaire is being used by such companies as: American Motors Corporation; Radio Corporation of America; Northwest Orient Air-line; International Telephone and Telegraph Corporation; and Maynard Research Council. The reliability and validity of this questionnaire have been examined in large shoe-manufacturing companies where management's overall rating of proficiency of foremen was compared to scores on this questionnaire; likewise,

in such situations where an analysis was being sought for determining the relationship of leadership patterns to organizational stress and effectiveness in hospitals.

A third section of the material given to the fifteen foremen included the sheet on "general information." Five specific areas of descriptive information were covered: length of employment with the company; length of seniority as a foreman; number of persons for which they have direct responsibility; educational training; and age of the foreman. Under each of these headings, categories were established in order to provide rapidly the necessary information. An "X" was to be placed next to the most appropriate category. For example:

How long have you worked with this company?

_____ Less than 5 years
_____ 5 to 9 years
_____ 10 to 19 years
_____ 20 to 29 years
_____ 30 to 39 years

This same format was used for the other four major divisions. The information was essential for providing descriptive material of the fifteen foremen.

As documented by the research of Kilgore and Piersol, the specific tasks of industrial or manufacturing foremen appeared to fall into specific categories. From their work, ten specific tasks were listed for the foremen to consider in the fourth section of the questionnaire. Each foreman was asked to rank these tasks in the order of importance

as he considered them in doing a good and efficient job in supervising his department. He marked a number "1" next to the task he considered the most important; a number "2" ranking second, etc. For example:

__1__ Maintaining quality and quantity of production.

__3__ Planning and scheduling of manpower and production; planning and using supplies economically.

__2__ Training workers; giving job information to workers; getting the right people on the right job.

The final portion of the foreman questionnaire utilized these ten tasks in relation to: the amount of time spent each week per task; the direction of interaction necessary to carry out efficiently the task; and the manner of carrying out the task--written or oral. In order not to make this section confusing, a three-part, carbon questionnaire was used. On the first sheet, only the total number of hours spent per week for each task was listed. On the second sheet, the direction of interaction was listed; with information on written communication on the third sheet. For example see sample on the following page. The amount of time spent on each task and the direction of interaction were thus estimated.

TASK	TIME SPENT	SUPERIORS	SUBORDINATES	OTHER FOREMEN	NO INTER-ACTION
1. Maintaining quality and quantity of production.					
2. Planning and scheduling of manpower and production; planning and using supplies economically.					
3. Training workers; giving job information to workers; getting the right people on the right job.					

The third sheet requested the per cent of interaction which was written to their superiors, subordinates, and other foremen. This information provided data on the channels used.

Thus, the foremen questionnaires were enclosed in an envelope with their names attached. They removed their names or identification and exposed themselves to five different sections of information. These included: a general cover letter, a Leadership Opinion Questionnaire, a general information sheet, ranking importance of ten specific tasks, and direction and method of interacting to accomplish the ten specific tasks. Since the envelopes were coded, it was possible to identify each questionnaire of the foremen.

The two production supervisors, on the other hand, were asked to provide some additional information. They received an envelope containing the questionnaires

in the same manner as the foremen. Once again these folders were coded for identification purposes. Three different pieces of information were included: first, a general cover letter was read orally to them by the graduate student administering the questionnaire. This letter explained the purpose of the study, its relationship to graduate research at Michigan State University, and the importance to estimate what they ordinarily expect of their foremen in relationship to interaction patterns for ten specific tasks.

Second, like the fifteen foremen, they were asked to rank in the order of importance the tasks they considered important for foremen to perform efficiently the duties and responsibilities of their departments. And, finally, they also filled out information related to the direction and method of carrying out each of the ten specific tasks. Their answers or reactions to these areas of concern were to represent what they expected of their foremen. The foremen, on the other hand, estimated what they actually performed in relation to these specific tasks.

The productivity ratings for each of the fifteen foremen were supplied by the Manufacturing Superintendent. He was asked to evaluate the productivity of each foreman. The term "productivity" was defined as:

> . . . the ability of the foremen to get out consistently the required work over a period of time with good quality, organize their

> department in order to achieve organizational goals, and establish rapport with their subordinates.

A number "1" was to be given to the most productive foremen; a number "2" to the individual who was second most productive, etc. This productivity rating provided a bases upon which to compare if high productive foremen possess interaction patterns for ten specific tasks different than low productive foremen. These ratings also could be compared to the Leadership Opinion Questionnaire for reliability and validity analyses.

In short, the foremen were asked to estimate their interaction patterns during the course of a week; the production supervisors were likewise asked to estimate what they expect of their foremen; and the Manufacturing Superintendent classified or rated the productivity of each supervisor.

CHAPTER V

RESULTS AND ANALYSIS

The data collected from the questionnaires which were given to the foremen and their immediate superiors can be analyzed by: (1) examining the interaction patterns for each of the ten tasks, and (2) considering the summation of these tasks. In relation to these two major areas, it is possible to sub-divide the data and categorize it into four specific groups: (1) all of the foremen, (2) what their superiors expect, (3) reactions of the most productive-rated foremen (top twenty-seven per cent), and (4) reactions of the least productive-rated foremen (bottom twenty-seven per cent).

The interaction patterns of the subjects in this case study were analyzed in relation to the following ten tasks:

1. Maintaining quality and quantity of production.
2. Planning and scheduling of manpower and production; planning and using supplies economically.
3. Training workers; giving job information to workers; getting the right people on the right job.
4. Adjusting and handling grievances; promoting cooperation; building morale.
5. Promoting safety; maintaining good housekeeping.
6. Cooperating with other foremen and departments; reporting matters to management.
7. Explaining company policy.

8. Engaging in social conversation.
9. Analyzing costs of production.
10. Analyzing efficiency of your department.

In order to determine what interaction patterns are necessary to perform these specific tasks, the foremen (and their immediate superiors) were asked to estimate for each task the amount of time devoted to nine specific categories.

1. The amount of time devoted per week to each task.
2. The rank order of importance of each task (in relation to the total number being evaluated) to supervise efficiently and productively.
3. The amount of time spent interacting with their superiors.
4. The per cent of interaction with superiors which is written.
5. The amount of time spent interacting with their subordinates.
6. The per cent of interaction with their subordinates which is written.
7. The amount of time spent interacting with other foremen.
8. The per cent of interaction with other foremen which is written.
9. The amount of time spent on each task that does not require any interaction.

The actual and expected interaction patterns for each of the above ten tasks will be described in the next section, followed by the over-all interaction patterns of foremen for a forty-hour work week.

Interaction Patterns for Each Task

Task Number 1: "Maintaining quality and quantity of production."

The following table summarizes the interaction patterns for all the foremen, for expectations of their supervisors, and for the high and the low productive foremen.

TABLE 6.--Interaction patterns for maintaining quality and quantity of production. (in per cents)

	Time Devoted	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	28.2	13.6	(11.7)	54.1	(10.0)	14.8	(23.8)	17.5
Production Supervisors	13.8	18.2	(40.0)	54.5	(36.6)	13.6	(33.3)	13.6
High Productive	33.7	11.1	(15.0)	62.0	(20.4)	8.3	(31.1)	18.5
Low Productive	40.0	11.7	(9.1)	48.4	(1.6)	15.6	(19.0)	24.2

Task number one was ranked the most important task in performing efficiently a supervisory job by all of the foremen (including the high and low productive foremen). Their immediate superiors, however, considered this task to be of lesser importance. They listed planning and scheduling (task #2), and training and locating workers (task #3) of more importance than maintaining quality and quantity of production.

As the preceding table illustrates, production supervisors likewise do not agree with their foremen in relation to the per cent of time devoted each week to this particular task. This suggests a correlation between the importance of the task and the amount of time devoted per week to each task. This will be discussed in more detail in the second major section of this chapter.

The amount of time devoted to this task by all of the foremen is considerably more than that expected by the production supervisors. Likewise, the lower productive foremen spend forty per cent of their work week on this task, while the higher productive foremen spend only twenty-eight per cent. However, when combining the amount of time devoted to the first three tasks, the high productive foremen invest 69.1% of their efforts while the low productive foremen spend 71.3% of their work week. When comparing all the foremen with the production supervisors on this point, they differ significantly. The average time spent

by all of the foremen is 64.2% and the production supervisors expect 48.8% of their efforts on the first three tasks listed previously.

The interaction patterns with superiors for this task appear to differ little between the four groups. However, there is a noticeable difference in the per cent of interaction which is written to superiors. The production supervisors expect forty per cent of the interaction to be written, while the foremen estimate they spend only 11.7% of their efforts on this form of communication. The lower productive foremen, on the other hand, use written interaction 9.1% of the time, which is below the average for all of the foremen in the sample, and the results obtained from the high productive foremen.

There is a high correlation between all the foremen and the production supervisors in relation to interaction with subordinates. They suggest that in order to maintain quality and quantity of production it is necessary to interact with their subordinates over fifty per cent of the time devoted to this task. However, a small per cent of this interaction is written, although the high productive foremen spend significantly more time in written communication than the lower productive foremen.

As a whole the high productive foremen appear to be more independent in performing this task since they interact less with superiors and other foremen than the

lower productive foremen. Only 8.3% of the amount of time devoted to this task requires interaction with other foremen, although 31.1% of this is written. This correlates highly with the expectations of their production supervisors. The lower productive foremen, on the other hand, devote less time interacting with subordinates and interact more with other foremen; and spend more time not interacting with anyone. Likewise, as in the case of interaction with superiors and subordinates, they do not use written communication with other foremen to perform the task of maintaining quality and quantity of production.

Therefore, the production supervisors expect more written communication than actually being used by the foremen. Second, the high productive foremen are more independent and depend less on interaction with superiors and other foremen and devote 62.0% of their efforts interacting with subordinates. Whereas, the low productive foremen direct less attention to subordinates and spend more time interacting with superiors and other foremen; and 24.2% of their time required no interaction.

> Task Number 2.--"Planning and scheduling of manpower and production; planning and using supplies economically."

Production supervisors ranked this task the most important in performing efficiently as a foremen. The foremen, on the other hand, classify the previous task as

the most important and consider this task third in importance. The importance of the task and the amount of time devoted to it, however, do not affect the findings in the summary table (Table 7, p. 91).

For this particular task, the foremen devote more time than that expected by their immediate superiors, even though the foremen do not consider this task as important in their weekly activities as the production supervisors. Especially is this true with the high productive foremen who spend 20.0% of their week planning and scheduling whereas the lower productive foremen devote only 11.9%.

The expected interaction patterns of the production supervisors reflect a balanced contact between foremen and superiors, foremen and other foremen, and no interaction at all. Therefore, they suggest that the foremen should work with their superiors, other foremen, and independently when planning and scheduling production. The foremen, on the other hand, appear to consider it less important to deal with superiors, other foremen, and subordinates. They wish to be more independent and, therefore, do not interact with anyone 25.8% of the time they spend on this task.

Considering the per cent of time devoted to planning and scheduling each week, the lower productive foremen reflect a pattern related to that expected by their supervisors. They depend more on interaction with superiors, subordinates, and other foremen, with only 13.6% of their

TABLE 7.--Interaction patterns for planning and scheduling of manpower and production; planning and using supplies economically.
(in per cents)

	Time Devoted	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	17.8	15.7	(14.9)	40.7	(18.6)	17.9	(7.1)	25.8
Productive Supervisors	17.5	21.4	(46.7)	42.9	(15.0)	21.4	(26.7)	14.3
High Productive	20.0	14.1	(11.1)	31.3	(80.0)	26.6	(2.4)	28.1
Low Productive	11.9	17.1	(32.3)	44.7	(.1)	24.6	(.1)	13.6

time requiring no interaction. Thus, the high productive foremen appear to be more independent than the low productive foremen.

As was noted in the previous task, the production superivsors expect more written interaction than that actually used by all of the foremen. This is especially true in relation to interaction with superiors and other foremen, but the reverse exists in communicating with subordinates. Although for all of the foremen only 18.6% of the interaction with subordinates is written, there is a noticeable difference between the high and the low productive foremen. Eighty per cent of the interaction with subordinates by the high productive foremen is written, but only .1% by the low productive foremen.

In short, the production supervisors suggest that foremen should work with their superiors, other foremen, subordinates, as well as independently in planning and scheduling. The foremen, on the other hand, devote more time to self-evaluation, especially when compared to the expected per cent of interaction with superiors. Likewise, the high productive foremen are more independent in their efforts than the low productive foremen. And finally, the productive supervisors expect more written communication with superiors and other foremen than is actually being used by the foremen. The low productive foremen tend to parallel this expectation, whereas the high productive

foremen devote most of their written communication to the subordinates.

> Task Number 3.--"Training workers; giving job information to workers; getting the right people on the right job."

Both the production supervisors and the foremen consider this task to be of equal importance in their weekly activities. Although they differ as to the most important task, they agree that this one is the second most important. There is some disagreement, however, on the interaction pattern as illustrated by Table 8.

There is a strong correlation between the importance of the task and the amount of time devoted to it. As Table 8 illustrates, there is little difference between the amount of time spent on this task by the foremen and the expected amount by their immediate superiors. The high productive foremen, however, spend less time on this task than the low productive. This is in reverse of the preceding task related to planning and scheduling.

Training and locating workers requires a great deal of interaction with the subordinates. The foremen rely on the advice of their superiors; but only 5.9% of the time. The majority of the time they depend upon

TABLE 8.--Interaction patterns for training workers; giving job information to workers; getting the right people on the right job.
(in per cents)

	Time Devoted	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	18.2	5.96	(5.4)	51.8	(2.4)	8.5	(21.8)	33.7
Production Supervisors	17.5	7.1	(5.0)	71.4	(38.0)	10.7	(20.0)	10.7
High Productive	15.6	4.0	---	52.0	(.3)	16.0	---	28.0
Low Productive	19.4	11.3	(2.9)	43.5	(6.7)	16.9	(38.4)	28.2

their own initiative in working directly with the worker. This is especially true with the high productive foremen. They spend only 4.0% of their time interacting with superiors whereas the low productive foremen depend a great deal more on their supervisors--more than expected by their production supervisors. The interaction with superiors in all cases depends little upon written communication. Most of it is oral.

The production supervisors expect 71.4% of the time devoted to this task to involve interaction between foremen and their subordinates. The foremen, however, spend only 51.8% of the time in this area and depend more on no interaction, which suggests preparation for training and independent thinking for placement. The high and the low productive foremen do not differ significantly in their interaction patterns with subordinates, other foremen, and no interaction. Both groups appear to be dependent upon the help from independent work, other foremen, and direct interaction with subordinates. However, the low productive foremen do differ in the amount of interaction with superiors.

Once again the production supervisors expect more written communication than actually being used by the foremen, especially in relation to communication with subordinates. The high productive foremen prefer to

disregard the written channels and rely upon the verbal--significantly less than the expectations of the production supervisors. However, the low productive foremen use the written avenues more than the expectations of the production supervisors, and the high productive foremen, when dealing with other foremen.

Perhaps in relation to training and locating workers the following points should be emphasized. First, the production supervisors expect more interaction directly with the subordinates than the foremen, with most of this interaction being written. Second, the foremen do not interact with subordinates as much as expected by their superiors, but spend more time evaluating and making preparation and decisions on their own without the dependence on conversation with subordinates. And finally, the high and the low productive foremen have similar patterns of interaction with the exception of channel used. The lower productive foremen tend to use the written channels more, especially in relation to other foremen. Likewise, the low productive foremen depend more on the consultation from their superiors.

Task Number 4.--"Adjusting and handling grievances; promoting cooperation; building morale."

There is little difference between the foremen and the production supervisors as to the importance of this task in relation to the ten being examined. All of the foremen rank handling of grievances and morale problems as the seventh most important, whereas the production supervisors suggest that it should receive the sixth position. In fact, handling of grievances (task #4) and cooperating with other foremen (task #6) rank sixth and seventh for both the foremen and production supervisors, only in reverse order.

The first three tasks explored previously occupy most of the weekly activities of the foremen.

TABLE 9.--Per cent of time devoted to the first three tasks.

	Time Devoted to Tasks #1, #2, #3 (in per cent)
All foremen	64.2
Production Supervisors	48.8
High Productive Foremen	69.1
Low Productive Foremen	71.3

Even though the production supervisors consider these three tasks worthy of less time, they suggest that the foremen should devote approximately fifty per cent of their time. The foremen, on the other hand, devote approximately

sixty-five per cent of their work week to these tasks, with the low productive foremen reaching over the seventy per cent mark. Thus, the remaining seven tasks will not receive as much time.

The overall interaction patterns required and expected for handling grievances and building morale can be found in Table 10.

The foremen tend to devote less time to this task than expected by the production supervisors, although there is little difference. It is interesting to note that production supervisors expect the foremen to be more independent and active with other foremen than they consider essential to handle grievances and to build morale. The productive supervisors expect their foremen to spend sixty-six per cent of their time in relation to this task interacting with the subordinates. They do not suggest a great deal of contact with the superiors, but equal distribution of time between superiors and other foremen, with no time listed under "no interaction." The foremen, on the other hand, appear to be more dependent upon their superiors in dealing with grievances and building morale with their subordinates. Likewise, 20.9% of their activities do not require any interaction, which indicates a need for self planning and mental preparation. There is little interaction indicated with relation with other foremen.

TABLE 10.--Interaction patterns for adjusting and handling grievances; promoting cooperation; building morale.
(in per cents)

	Time Devoted	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	5.1	23.1	(4.96)	54.1	(.4)	1.9	(2.9)	20.9
Production Supervisors	7.5	16.7	(55.0)	66.7	(40.0)	16.7	(50.0)	----
High Productive	4.7	13.3	----	46.7	(.95)	----	----	40.0
Low Productive	4.4	15.0	(30.2)	71.4	(.66)	8.1	(2.9)	5.5

Once again the high productive foremen are more independent than the low productive foremen, especially since they spend less time interacting with superiors, other foremen, and subordinates; but devote more time not interacting with any level of authority. The low productive foremen, however, devote 71.4% of their efforts in the direction of their subordinates, with an additional 15% toward superiors. The remaining 14% they divide between interacting with other foremen and with self evaluation.

The productive supervisors place a great deal of emphasis upon written communication upward, downward, and horizontal in the organizational structure. In relation to contact with their superiors, the low productive foremen (and the production supervisors) place strong reliance upon written channels, but differ significantly in relation to interacting with subordinates and other foremen. The high productive foremen, on the other hand, do not consider written interaction of any importance in solving grievances and building morale. They rely on verbal communication and independent study (which requires no interaction).

Therefore, even though the importance of this task and the amount of time devoted to it differs little between the foremen and their immediate supervisors, their interaction patterns are not parallel. The foremen depend more on their superiors than expected by their production

supervisors; although the high productive foremen depend less. Likewise, the low productive foremen appear to be more dependent on superiors, subordinates, and other foremen, whereas the high productive foremen once again are more independent. And finally, the foremen, especially the high productive foremen, appear to be less concerned with written communication in comparison to the production supervisors. The latter expect approximately fifty per cent of the interaction to be written. The foremen, however, do not devote any more than five per cent.

Task Number 5.--"Promoting safety; maintaining good housekeeping."

The ranked importance of safety and good housekeeping is approximately of equal importance for both the production supervisors and the foremen. The latter rank this task of fourth importance, whereas the production supervisors suggest it should be either third or fourth.

The amount of time devoted to this task per week correlates with the rank of importance according to the results received from both the foremen and the production supervisors. However, as Table 11 illustrates, the high and the low productive foremen direct less attention to this task than the average of all the foremen and the production supervisors.

TABLE 11.--Interaction patterns for promoting safety; maintaining good housekeeping. (in per cents)

	Time Devoted	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	8.3	13.5	(7.9)	58.0	(11.95)	11.0	(10.9)	17.5
Production Supervisors	8.8	21.4	(56.7)	42.9	(46.7)	28.6	(60.0)	7.1
High Productive	6.2	20.0	(25.0)	50.0	----	5.0	----	25.0
Low Productive	5.6	8.3	(2.2)	55.6	(60.0)	11.1	(50.0)	25.0

The foremen consider the promotion of safety and good housekeeping an activity which deals mostly with subordinates. Seventy-five per cent of their efforts are directed toward themselves (no interaction) or their subordinates. The remaining time is divided between their superiors and other foremen. The production supervisors, however, expect more of a balanced interaction pattern.

Although the production supervisors expect approximately forty per cent interaction with subordinates, they expect almost twice as much to be spent interacting with superiors and other foremen than the foremen consider necessary. This, therefore, means less time should require "no interaction."

The high productive foremen tend to agree with the production supervisors' expectations concerning interaction with superiors, but consider it less important to communicate with other foremen, and more emphasis on individual effort. The low productive foremen, on the other hand, feel that safety and good housekeeping require that a majority of their efforts be directed to subordinates and self interaction; and more connection with other foremen than considered by the high productive foremen.

The foremen consider ten per cent a sufficient amount devoted to written communication with superiors, subordinates, and other foremen, whereas the production supervisors hope for an average of fifty per cent devotion.

It is interesting to note that the high productive foremen use only written communication when dealing with superiors, but do not consider this channel when interacting with subordinates and other foremen. The low productive foremen, however, consider interaction with superiors both (oral and written) of less importance, but place a great deal of emphasis upon written interaction with subordinates and other foremen.

In summary, the following points should be emphasized. First, the foremen consider the task of promoting safety and good housekeeping as one requiring the majority of their interaction with subordinates and themselves. The productive supervisors present a more balanced outlook with equal amount of time spent interacting with superiors and other foremen, but less than half of their time contacting subordinates. Third, the high and the low productive foremen express opposing views on the importance and direction of written communication. The high productive do not consider the written channels when interacting with subordinates or other foremen--and just twenty-five per cent of the time with superiors. The low productive foremen emphasize the written with subordinates and other foremen. And finally, there is a significant difference between the production supervisors and the foremen in relation to written communication. The former place more emphasis upon this channel of interaction.

Task Number 6.--"Cooperating with other foremen and departments; reporting matters to management."

Reporting various matters to other foremen and superiors was ranked by the foremen as the sixth most important task, whereas the production supervisors listed it seventh. This task relates to miscellaneous subjects or topics that do not directly concern the subordinates. The interaction patterns for this task can be found in Table 12.

Only six per cent of the week is expected and used by the foremen to perform this function. The high productive foremen consider it less important since they devote only three per cent of their efforts; whereas the low productive foremen, though less than that expected by their productive supervisors, direct four per cent of their efforts to this task.

The production supervisors expect equal interaction between: the foremen and their superiors; and the foremen and other foremen, with an additional twenty per cent requiring no interaction. The foremen, however, report more matters to other foremen than to their superiors, with a low per cent of interaction with their subordinates and the same amount requiring no interaction. This suggests that foremen report more things to other foremen than to their superiors, but also interact with their subordinates on some of these matters.

TABLE 12.--Interaction patterns for cooperating with other foremen and departments; reporting matters to management.
(in per cents)

	Time Devoted	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	6.3	37.9	(10.3)	5.3	(8.6)	51.5	(8.6)	5.3
Production Supervisors	6.3	40.0	(60.0)	----	----	40.0	(80.0)	20.0
High Productive	3.1	25.0	(14.7)	20.0	----	25.0	(45.3)	30.0
Low Productive	4.1	25.6	(43.0)	----	----	74.4	(21.4)	----

The high productive foremen spend twenty-five per cent of their time interacting with superiors and other foremen, and twenty per cent with subordinates, but do not interact with anyone thirty per cent of the time. This suggests that they consider such matters of balanced importance in all directions. The low productive foremen rely more heavily upon interacting with other foremen, with the remaining twenty-five per cent of their time directed to their superiors. The subordinates in this case are not contacted. Only two foremen listed any interaction with subordinates: one in the high productive group, the other in the "middle" group.

The production supervisors once again suggest that foremen should invest a high percentage of their time on written communication. Sixty per cent should be written to their superiors and eighty per cent to other foremen. The foremen, however, actually consider approximately ten per cent of the time sufficient. However, the low productive foremen rely more on written communication than the high productive ones.

Therefore, the interaction pattern for coordinating the departments and management in relation to miscellaneous subjects emphasize the following points. First, the production supervisors do not expect any interaction with subordinates, but equal amount of time directed toward superiors and other foremen. Second, the foremen spend

more time interacting with other foremen than with superiors; with some communication with subordinates. Third, the written efforts of foremen do not agree with the expectations of their production supervisors. However, the low productive foremen rely more on the written channels than the average foremen. And finally, the high productive foremen keep more matters to themselves than the low productive foremen.

Task Number 7.--"Explaining company policy."

The largest rank difference between the rank of the importance of a specific task for the production supervisors and the foremen occurs in relation to the importance of explaining company policy. The foremen consider this task as one of the least important (ninth) function of their weekly activities, whereas the production supervisors rank it fifth. This rank variance is apparent in relation to the amount of time spent per week by the foremen and the amount of time the production supervisors expect them to devote (see Table 13).

There is little difference between the amount of time spent by the low and the high productive foremen. The major disagreement is between the expectations of the production supervisors and the actual time spent by all of the foremen.

This task presents some unusual interaction patterns. Since the nature of the task is explaining policy, it

TABLE 13.--Interaction patterns for explaining company policy.
(in per cents)

	Time Devoted	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	2.3	----	----	69.1	----	9.1	----	21.8
Production Supervisors	6.3	----	----	70.0	(46.0)	20.0	(20.0)	10.0
High Productive	1.9	----	----	33.3	----	----	----	66.7
Low Productive	2.2	----	----	64.3	----	35.7	----	----

could be predicted that little, if any, interaction took place between the foremen and the superiors. The interaction in this case would be an explanation from the superiors to the foremen. Even the expectation of the production supervisors emphasizes this point.

The foremen direct seventy per cent of their time toward explaining policies to subordinates, with an additional ten per cent directed toward each other. A remaining twenty per cent suggests a need for individual understanding of the procedures and policies which do not require any interaction. These interaction formations parallel those expected by the supervisors.

An unusual contrast exists between the high and the low productive foremen. The high productive foremen direct only one-third of the time devoted to this task to their subordinates and two-thirds require no interaction. This pattern does not correlate with the average of all the foremen, nor the patterns of the low productive foremen. The latter directs sixty-five per cent of their efforts to the subordinates and the remaining amount explaining policies to other foremen. Only three of all the foremen sampled listed "no interaction," but two of these were in the high productive group. Thus, a possible reason for the difference in patterns.

In no case did the foremen consider the written explanation as part of their duties. The production

supervisors, however, expected that forty-six per cent of the interaction with subordinates be written, but only twenty per cent of the communication with other foremen.

The explanation of company policy by the foremen, therefore, suggests that it be directed primarily to subordinates and other foremen. The remaining efforts would then require no interaction. Only the production supervisors suggested that written communication be used. The foremen did not rely on this channel for any interaction.

Task Number 8.--"Engaging in social conversation."

The importance of engaging in social conversation by the foremen received the same rank of importance from the foremen and the production supervisors. Both ranked this task the least important. The next least important task, according to the foremen, was explaining company policy, whereas the production supervisors considered analyzing costs of production.

Table 14 illustrates the difference between the foremen and their immediate superiors as to the amount of time that should be devoted to this task. The foremen consider social conversation to demand as much of their weekly time as that of explaining company policies. The production supervisors, however, place it on equal time with adjusting and handling grievances, and promoting morale and cooperating with the workers. The high

TABLE 14.--Interaction patterns for engaging in social conversation.
(in per cents)

	Time Devoted	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	2.5	22.4	(.97)	45.4	(5.8)	27.7	(.79)	4.6
Production Supervisors	7.5	25.0	(20.0)	50.0	----	25.0	----	----
High Productive	1.6	20.0	----	50.0	----	30.0	----	----
Low Productive	2.5	29.2	----	22.9	----	42.9	----	----

productive foremen consider it less worthy of their time than the low productive foremen and the production supervisors.

Of the time devoted to this task, the foremen and the production supervisors agree that approximately fifty per cent of the communication should be directed toward their subordinates. The remaining time will be divided between conversing with their superiors and other foremen.

The high productive foremen, however, placed a little more emphasis upon engaging in social conversation with other foremen than expected by the production supervisors. The low productive foremen, on the other hand, engage in social conversation primarily with other foremen, and approximately thirty per cent of it with superiors and only twenty-two per cent with subordinates. This suggests the possibility of a lower production rating by management with this amount of social conversation with superiors.

There is little written communication suggested by either the foremen or the production supervisors. The latter expect this type of conversation to be written only to superiors, whereas the foremen show some form of written interaction with superiors, subordinates, and other foremen; although of no significance. One foreman out of the sample allotted time to "no interaction"; which is difficult to explain at this point.

The above patterns illustrate the following conclusions. First, both the foremen and the production supervisors suggest the need for social interaction. They differ in the amount of time that should be devoted to this task, with the production supervisors expecting almost three times as much as the foremen experience. Second, the low productive foremen engage in social conversation more than the high productive foremen with superiors and other foremen but less with subordinates. Third, little written interaction takes place, although the social conversation with superiors is expected by the production supervisors to be twenty per cent. And finally, the high productive foremen direct only twenty per cent of their conversation toward superiors, with the remaining eighty per cent to subordiantes and other foremen.

Task Number 9.--"Analyzing costs of production."

Even though the production supervisors rank this task ninth in importance and the foremen eighth, they expect their foremen to devote more time to this task than the foremen consider important (see Table 15).

The production supervisors consider this amount equal to that expected in relation to explaining company policy (task #7) and cooperating with other foremen, and reporting matters to management (task #6). The foremen,

TABLE 15.--Interaction patterns for analyzing costs of production.
(in per cents)

	Time Devoted	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	4.4	34.6	(1.3)	12.9	(.48)	14.8	(.42)	37.7
Production Supervisors	6.3	30.0	(26.7)	30.0	(6.7)	20.0	(50.0)	20.0
High Productive	5.6	22.2	----	16.7	----	22.2	----	38.9
Low Productive	5.0	31.3	----	21.9	----	21.9	----	25.0

however, consider it more important than spending time explaining company policy (task #7) and engaging in social conversation (task #8).

The interaction pattern expected by the production supervisors is fairly well balanced. Sixty per cent of the total time devoted to this task is divided equally between superiors and subordinates, with the remaining forty per cent divided equally between interaction with other foremen and self interaction. The foremen direct more communication toward superiors and self interaction, and less toward subordinates and other foremen, than expected by the production supervisors. Only twenty-seven per cent of their time requires contact with subordinates and other foremen.

The low productive foremen correlate closely with the pattern of interaction expected by the production supervisors. However, the high productive foremen, appear to be more independent and self reliant. Only twenty-two per cent of their interaction deals with their superiors and the same amount with other foremen. Of the remaining fifty-four per cent, thirty-eight per cent require no interaction. They consider contact with the subordinates of little importance when analyzing costs of production.

Neither the low nor the high productive foremen use written interaction in attempting to analyze production

costs. The small percentage recorded by all the foremen stems from those included in the "middle" productive group. The production supervisors, however, emphasize the importance of written communication to other foremen, with twenty-six per cent directed through this channel when interacting with superiors. However, a small portion of the time is expected to be written when conversing with their subordinates.

Therefore, some consistent patterns are seen in relation to this task. First, the high productive foremen are more independent than the low productive foremen, and the expectations of the production supervisors. Second, the production supervisors expect a higher percentage of written communication than the actual practice of the foremen. Third, the foremen are expected to be more communicative with their interaction in seeking to analyze cost of production. Required self interaction and contact with superiors, subordinates, and other foremen are all important. The foremen, however, rely a great deal on their superiors and self interaction. And finally, the foremen appear to rely on oral interaction to receive additional information.

Task Number 10.--"Analyzing efficiency of your department."

As previously mentioned, the widest difference in task rank of importance existed when explaining company

policy. However, the second most discrepant deals with analyzing departmental efficiency. The foremen rank this task as fifth most important--between promoting safety and good housekeeping (task #5) and cooperating with other foremen and reporting matters to management (task #6). The production supervisors, however, classify this task as eighth in importance. This would place it between analyzing the production costs (task #9) and cooperating with other foremen and reporting matters to management (task #6). Thus, the difference in ranked importance for this task by foremen and production supervisors is three positions (see Table 16).

Even though the production supervisors consider this task less important than the foremen, they expect more time to be devoted to it than the foremen estimate they spend. The per cent of the total weekly activities expected by the immediate supervisors is equal to that devoted to promoting safety and good housekeeping (task #5).

The general pattern expected by the production supervisors reflects one of independence. They expect thirty-five per cent to be self-evaluation with additional contact with other foremen and subordinates. However, the least amount of time should be directed toward superiors. The foremen, on the other hand, portray a more balanced distribution. The majority of interaction is with superiors, with a high per cent dealing with self-evaluation and contact with other foremen. Twenty-one

TABLE 16.--Interaction patterns for analyzing efficiency of your department. (in per cents)

	Time Devoted	To Supervisors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	6.8	29.3	(10.6)	20.7	----	23.2	(.17)	26.8
Production Supervisors	8.8	14.3	(55.0)	21.4	(20.0)	28.6	(47.5)	35.7
High Productive	7.5	12.5	(50.0)	8.3	----	45.8	----	33.3
Low Productive	5.0	25.0	----	31.3	----	18.8	----	25.0

per cent of the total require communication with their subordinates, which parallels that expected by their production supervisors. However, they differ significantly as to the amount of interaction with superiors.

Prior to this tasks the high productive foremen have been quite independent. When analyzing the departmental efficiency, they direct forty-five per cent of their time interacting with other foremen. Seventy-eight per cent of their efforts require contact with other foremen and self-evaluation. Only twelve per cent is directed toward their superiors, and even less to their subordinates.

The low productive foremen appear not to discuss their departmental functions with other foremen, but rely on contact with subordinates, superiors, and self-evaluation. This reinforces their patterns displayed thus far with reliance upon others to carry on duties or tasks.

The production supervisors once again place a great deal of emphasis upon written communication; especially with superiors and other foremen. Approximately half of the interaction with superiors and other foremen is expected to be written. The foremen, on the other hand, use but ten per cent and this is directed toward the superiors.

The low productive foremen do not list any time devoted to written communication. However, the only written contact made by the high productive foremen was directed toward the superiors.

Departmental analysis appears to be one task that production supervisors would like to have done independently by the foremen. They expect most of the analysis to be self-evaluation with additional help from subordinates and other foremen. The least amount of interaction should be with superiors. The foremen, however, take a more balanced approach by interacting with superiors, self-evaluation, other foremen, and even subordinates. Third, the low productive foremen depend more on subordinate interaction than communication with superiors or other foremen; whereas the high productive foremen rely heavily upon other foremen. And finally, production supervisors expect the written form of interacting to be used primarily with superiors and other foremen. However, the foremen find this method important only with superiors--and this to a small degree.

Interaction Patterns for All Tasks

In the preceding section interaction patterns for <u>each</u> task were analyzed according to: all of the foremen, what the production supervisors expect of their foremen, the high productive foremen, and the low productive foremen.

In the following section these four categories will be examined in relation to the overall interaction patterns for all of the ten tasks sampled. In contrast to the results reported for each task, the following data will provide a more complete and overall pattern for the work performed during an average work week for an industrial foreman.

Amount of Time Spent Per Week on Each Task

The foremen were asked to estimate the amount of time they devoted each week to each of the ten tasks sampled. The production supervisors also calculated the time they expected their foremen to spend. From the data collected, Table 17 can be constructed.

According to this table, the majority of the time spent by the foremen, as well as the expected time, can be found in relation to tasks one, two, and three. All of the foremen, as well as the low and the high productive foremen devote the largest per cent of their time to maintaining quality and quantity of production (task #1). The production supervisors, however, list tasks two and three as the ones requiring the most time. According to them, planning and scheduling of manpower and production (task #2), and the importance of training and locating workers (task #3), should receive the most attention.

TABLE 17.--The amount of time spent per week on each task.
(in per cent)

	Task									
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
All Foremen	28.2	17.8	18.2	5.1	8.3	6.3	2.3	2.5	4.4	6.8
Production Supervisors	13.8	17.5	17.5	7.5	8.8	6.3	6.3	7.5	6.3	8.8
High Productive	33.5	20.0	15.6	4.7	6.2	3.1	1.9	1.6	5.6	7.5
Low Productive	40.0	11.9	19.4	4.4	5.6	4.1	2.2	2.5	5.0	5.0

The high and the low productive foremen do not agree on the second and third most time consuming tasks. The high productive foremen consider planning and scheduling (task #2) worthy of more time than training and locating workers (task #3). On the other hand, the low productive foremen place these two tasks in reverse order. Even though they disagree as to the order of the first three tasks, they correlate highly on total time devoted to these tasks per week. The high productive foremen spend 69.1% of their time, whereas the low productive foremen exceed this amount by spending 71.3%. These figures contrast with those for all of the foremen and what the production supervisors expect. All the foremen devote 64.2% of their time to these first three tasks, whereas the production supervisors expect them to be occupied only 48.8% of the work week.

Even though it may appear that the production supervisors' expectations may differ significantly from those of their foremen, this does not necessarily hold true for the ten task sampled. A Spearman rank correlation coefficient (r_s) was computed to test the rank correlation between all of the foremen and the expectations of the production supervisors for each task. For the ten tasks, the relation between these two groups for the amount of time spent on these tasks and the amount of time expected is $r_s = .8516$, which is significant at the

.01 level of significance (one-tailed). Therefore, there is a high rank correlation between the rank order of time devoted to the ten tasks.

The Spearman rank correlation coefficient was also used to compare the data collected from the high and the low productive foremen. The value of r_s was .9546, which is higher than the rank correlation of all the foremen and the production supervisors. This coefficient too was significant at the .01 level of confidence (one-tailed).

Therefore, considering the results of the Spearman rank correlation coefficient (r_s), it is possible to conclude there is a high association between foremen and production supervisors, and high and low productive foremen, in the amount of time devoted to each of the ten tasks. The majority of this time is invested by the foremen in the first three tasks; and approximately fifty per cent was expected by the production supervisors.

Importance of Each Task

The subjects in this case study ranked each of the ten tasks in order of importance for performing their weekly activities. The task they felt the most important in performing an efficient supervisory job received a number one ("1") ranking, with the next most important receiving a number two ("2"). The production supervisors also calculated their rank order. Table 18 summarizes the results.

TABLE 18.--The rank importance of each task. (in per cents)

	Task									
	#1	#2	#3	#4	#5	#6	#7	#8	#9	#10
All Foremen	1	3	2	7	4	6	9	10	8	5
Production Supervisors	3.5	1	2	5	3.5	7	5	10	9	8
High Productive	1	3	2	8	5	6	9	10	7	4
Low Productive	1	3	2	6	4	5	9	10	8	7

Production supervisors and foremen disagree primarily in relation to two tasks. They take varying positions on the importance of explaining company policy (task #7) and the importance of analyzing departmental efficiency (task #10). Likewise, their rankings for maintaining quality and quantity of production (task #1), and training and locating workers (task #3) were in reverse order.

However, considering the rank differences for the ten tasks, there is a significant rank correlation. The Spearman rank correlation coefficient (r_s) is .7667, which is significant at the .01 level of confidence (one-tailed).

The high and the low productive foremen also experienced their primary rank order disagreement in relation to analyzing departmental efficiency (task #10). A second difference exists with the importance of handling grievances and promoting cooperation (task #4). These were the widest separated rank differences.

The Spearman rank correlation between the high and the low productive foremen is higher than that of the foremen and production supervisors. With an r_s of .9031, there is significant rank correlation of agreement between the foremen and the production supervisors, and also between high and the low productive foremen.

Comparison Between Amount of Time Spent and Importance of the Task

In the preceding sections a comparison was made between the production supervisors and the foremen in

relation to the amount of time spent on each of the ten tasks and the ranked importance of these tasks to supervise efficiently. The following paragraphs attempt to combine these previously examined areas in order to determine if a rank correlation exists between the amount of time spent on each task and the perceived importance of the task.

TABLE 19.--The amount of time spend and the ranked importance of each task for production supervisors and foremen.

Production Supervisors			All Foremen	
Time Spent	Importance of Task	Task	Importance of Task	Time Spent
13.8%	3.5	# 1	1	28.2%
17.5%	1	# 2	3	17.8%
17.5%	2	# 3	2	18.2%
7.5%	6	# 4	7	5.1%
8.8%	3.5	# 5	4	8.3%
6.3%	7	# 6	6	6.3%
6.3%	5	# 7	9	2.3%
7.5%	10	# 8	10	2.5%
6.3%	9	# 9	8	4.4%
8.8%	8	#10	5	6.8%

Spearman rank correlation coefficient (r_s) was computed to determine the association between the time spent and the importance of the task for both the production supervisors and the foremen. The production supervisors correlate significantly at the .05 level of confidence (one-tailed) with an r_s of .7120, but the rank correlation is not significant at the .01 level of significance.

The foremen, on the other hand, correlate highly between the amount of time spent and the importance of the task. Their rank correlation (r_s) of .9879 is significant at the .01 level (one-tailed) which is more highly correlated than the results obtained with the production supervisors. The latter group tends to divide the expected time per task more equally for the last seven tasks. Likewise, the production supervisors have a more balanced distribution with several tasks receiving the same amount of time per week.

A similar analysis can be made between the low and the high productive foremen. As Table 20 illustrates, there appears to be a high degree of rank correlation between the time spent and the importance of each task.

TABLE 20.--The amount of time spend and the ranked importance of each task for high and low productive foremen.

High Productive			Low Productive	
Time Spent	Importance of Task	Task	Importance of Task	Time Spent
33.5%	1	# 1	1	40.0%
20.0%	3	# 2	3	11.9%
15.6%	2	# 3	2	19.4%
4.7%	8	# 4	6	4.4%
6.2%	5	# 5	4	5.6%
3.1%	6	# 6	5	4.1%
1.9%	9	# 7	9	2.2%
1.6%	10	# 8	10	2.5%
5.6%	7	# 9	8	5.0%
7.5%	4	#10	7	5.0%

A Spearman rank correlation coefficient (r_s) was computed for each of these groups in order to determine the association of the time spent on each task and the importance of each task. The high productive foremen correlate more highly than the low productive foremen. The former has a rank correlation (r_s) of .9516, which is significant at the .01 level of confidence (one-tailed). The low productive foremen, on the other hand, correlate .8758 which is also significant at the same level of confidence. Therefore, the high and low productive foremen associate significantly the amount of time devoted to the ten tasks and the ranked importance of them.

The highest ranked correlation was expressed by all the foremen (.9879), followed by the high productive foremen (.9516) and the low productive foremen (.8758), with the lowest rank correlation (although statistically significant at the .05 level of confidence) being for the production supervisors (.17120).

Amount of Interaction with Superiors

In the second part of this chapter three specific topics have been summarized: the amount of time devoted to the ten tasks; the ranked importance of these tasks; and the correlation between the time devoted and the importance of the ten tasks. In the following sections of this chapter attention will be directed toward analyzing the interaction patterns necessary to carry out the ten

tasks. The actual and expected dependence of foremen upon superiors, subordinates, other foremen, and self-evaluation will be examined in relation to carrying out these tasks. Likewise, some additional information will be directed toward noting the amount of written versus oral interaction which takes place and is expected by the production supervisors.

The dependence upon superiors for the ten tasks can be evaluated by Table 21. This table illustrates the amount of foremen interaction for each of the ten tasks directed to their superiors. The figures in parenthesis relate to the per cent of this interaction which is written. These figures could be examined more scientifically by the summary provided for the ten tasks in Table 22.

Two immediate facts are illustrated clearly in this table. First, the production supervisors expect more interaction with superiors each week than all the foremen actually perform. This is especially true with the high productive foremen, and somewhat true of the low productive. Second, a significant difference exists between the actual and the expected per cent of written communication with superiors. The low productive foremen estimate that thirty per cent of their interaction is written, but the high productive foremen do not use one-half this amount. Even the total average for the foremen is less than ten per

TABLE 21.--Amount of interaction with superiors for each task.
(in per cents)

Task	All Foremen	(Written)	Production Supervisors	(Written)	High Productive	(Written)	Low Productive	(Written)
#1	13.6	(11.7)	18.2	(40.0)	11.1	(15.0)	11.7	(9.1)
#2	15.7	(14.9)	21.4	(46.7)	14.1	(11.1)	17.1	(32.3)
#3	5.96	(5.4)	7.1	(5.0)	4.0	(----)	11.3	(2.2)
#4	23.1	(4.96)	16.7	(55.0)	13.3	(----)	15.0	(30.2)
#5	13.5	(7.9)	21.4	(56.7	20.0	(25.5)	8.3	(2.2)
#6	37.9	(10.3)	40.0	(60.0)	25.0	(14.7)	25.6	(43.0)
#7	----	(----)	----	(----)	----	(----)	----	(----)
#8	22.4	(.97)	25.0	(20.0)	20.0	(----)	29.2	(----)
#9	34.6	(1.3)	30.0	(26.7)	22.2	(----)	31.3	(----)
#10	29.3	(10.6)	14.3	(50.0)	12.5	(50.0)	25.0	(----)

TABLE 22.--Per cent of interaction with superiors for the ten tasks.

	All Foremen	Production Supervisors	High Productive	Low Productive
Interaction with superiors	16.5	18.1	11.2	15.9
Per cent of this written	9.4	42.1	14.3	29.7

cent, which indicates that the "middle" productive foremen use the written channels less than both the high and low productive.

A Spearman rank correlation coefficient (r_s) was computed to examine the association of the actual amount of interaction with superiors for each task and the expected per cent by the production supervisors. With a rank correlation (r_s) of .6758, there is a significant correlation between production supervisors and all of the foremen at the .05 level of confidence (one-tailed).

The rank correlation between the high and the low productive foremen is (r_s) .7061, which is significant at the .05 level of confidence (one-tailed). However, the rank correlation coefficient is slightly higher than that listed above.

Therefore, several points need to be emphasized. First, the production supervisors expect more interaction with superiors than the foremen consider important; especially the high productive foremen. The foremen rely on their superiors only 16.5% of the time during the week's activities. Second, in relation to the interaction with superiors, the production supervisors consider the written channels more important than the foremen. However, the low productive foremen use this form of interaction twice as much as the high productive foremen. Third, there is a significant rank correlation between the

production supervisors and the foremen (as well as between the high and low productive foremen) as to the amount of time spent communicating with superiors for the ten tasks.

Amount of Interaction with Subordinates

The second chapter emphasized that organizational theorists considered foremen as "marginal men"; the contact point for both management and union. However, with their allegiance to management, one would expect the majority of their communication to be directed toward their subordinates rather than to their superiors. In the preceding section it was noted only sixteen per cent of the interaction for the foremen each week was with their superiors. Thus, considering their communication position in the organization structure, it can be illustrated that foremen devote the majority of their time interacting with subordinates.

Table 23 supports the above comments that the majority of interaction by the foremen will be with their subordinates. Even the production supervisors expect a large per cent of their foremen's interaction to be in this direction. A summarization in Table 24 illustrates how closely related the actual and the expected patterns of the foremen were for this case study.

In comparison to the data analyzed previously, this table shows the closest agreement between the foremen

TABLE 23.--Amount of interaction with subordinates. (In per cent)

Task	All Foremen	(Written)	Production Supervisors	(Written)	High Productive	(Written)	Low Productive	(Written)
#1	54.1	(10.0)	54.5	(36.6)	62.0	(20.4)	48.4	(1.6)
#2	40.7	(18.6)	42.9	(15.0)	31.3	(80.0)	44.7	(.1)
#3	51.8	(2.4)	71.4	(38.0)	52.0	(.3)	43.5	(6.7)
#4	54.1	(.4)	66.7	(40.0)	46.7	(.95)	71.4	(.66)
#5	58.0	(11.95)	42.9	(46.7)	50.0	(----)	55.6	(60.0)
#6	5.3	(8.6)	----	(----)	20.0	(----)	----	(----)
#7	69.1	(----)	70.0	(46.0)	33.3	(----)	64.3	(----)
#8	45.4	(5.8)	50.0	(----)	50.0	(----)	22.9	(----)
#9	12.9	(.48)	30.0	(6.7)	16.7	(----)	21.9	(----)
#10	20.7	(----)	21.4	(20.0)	8.3	(----)	31.3	(----)

TABLE 24.--Interaction with subordinates for the ten tasks. (In percent)

	All Foremen	Production Supervisors	High Productive	Low Productive
Interaction with superiors	44.6	47.5	44.2	44.0
Per cent of this written	8.5	30.9	21.1	6.3

and the production supervisors. The interaction patterns with subordinates require approximately forty-five per cent of their weekly time. There is slight disagreement between the foremen and the production supervisors, although such is not the case in relation to the high and the low productive foremen.

The use of the written channels of communication once again show a difference between what the foremen consider important and what the production supervisors expect. The production supervisors expect thirty per cent of the interaction to be written, whereas the foremen use this method less than ten per cent of the time. Previously the low productive foremen relied more on written communication than did the high productive foremen. However, when interacting with subordinates, the high productive foremen use the written form of interaction three times as much as the low productive.

The Spearman rank correlation was used to determine the association of amount of time expected by the production supervisors and the amount of time the foremen interacted with their subordinates for each of the tasks. There is a significant rank correlation at the .01 level of confidence (one-tailed). Thus, a correlation exists with an r_s of .8000. The low and the high productive foremen, however, do not correlate subordinate interaction for these tasks. With an r_s .4273, this relationship is not significant.

From the above results, it can be stated that the foremen devote approximately forty-five per cent of their time interacting with foremen. Second, this correlates with the expectations of the production supervisors. Third, the rank correlation of subordinate interaction of the high and the low productive foremen is not significant for the ten tasks. Thus, no significant association exists. Fourth, unlike the previously stated results, the high productive foremen rely three times as much on written communication as the low productive foremen. And finally, the foremen do not consider the written channels as important as the production supervisors.

Amount of Interaction with Other Foremen

The previous analysis of foremen interaction with superiors and subordinates outlines a pattern of upward and downward communication networks. At the foremen level, as illustrated in the preceding sections, the majority of the interaction is downward. However, the horizontal networks also must be considered. What dependence do the foremen place on interacting with one another?

Table 25 illustrates the increase in written interaction, especially for the foremen. However, in relation to explaining company policy (task #7) the foremen do not use the written channels of communication with other foremen. Production supervisors, on the other hand, expect

TABLE 25.--Amount of interaction with other foremen. (in per cent)

Task	All Foremen	(Written)	Production Supervisors	(Written)	High Productive	(Written)	Low Productive	(Written)
#1	14.8	(23.8)	13.6	(33.3)	8.3	(31.1)	15.6	(19.0)
#2	17.9	(7.1)	21.4	(26.7)	26.6	(2.4)	24.6	(.1)
#3	8.5	(21.8)	10.7	(20.0)	16.0	(----)	16.9	(38.4)
#4	1.9	(2.9)	16.7	(50.0)	----	(----)	8.1	(2.9)
#5	11.0	(10.9)	28.6	(60.0	5.0	(----)	11.1	(50.0)
#6	51.5	(8.6)	40.0	(80.0)	25.0	(45.3)	74.4	(21.4)
#7	9.1	(----)	20.0	(20.0)	----	(----)	35.7	(----)
#8	27.7	(.79)	25.0	(----)	30.0	(----)	42.9	(----)
#9	14.8	(.42)	20.0	(50.0)	22.2	(----)	21.9	(----)
#10	23.2	(.17)	28.6	(47.5)	45.8	(----)	18.8	(----)

twenty per cent of the interaction among foremen should be of this nature.

A more analytical view of the interaction with other foremen can be seen in Table 26.

TABLE 26.--Interaction with other foremen for the ten tasks. (in per cent)

	All Foremen	Production Supervisors	High Productive	Low Productive
Interaction with other foremen	16.3	20.6	16.9	20.3
Per cent of this written	11.9	39.7	8.0	16.9

According to these figures, the production supervisors tend to expect more interaction among foremen than the foremen themselves exercise. They foresee the importance of their foremen interacting with superiors eighteen per cent of the week, subordinates forty-seven per cent, and other foremen twenty per cent. Therefore, they expect more interaction with other foremen than with superiors; but the majority of the time (more than twice the amount for superiors and subordinates) with the subordinates.

Low productive foremen agree with the production supervisors' expectation as to the amount of time each week that should be spent interacting with other foremen. The high

productive foremen, however, agree more closely with the average for all of the foremen.

The highest per cent of written communication is used by the foremen interacting among themselves. Only nine per cent of the contact with superiors is written, and even a lesser amount with subordinates. The increase to approximately twelve per cent provides a contrast to the upward and downward channels of written communication.

However, the production supervisors continue to expect a higher degree of written work by their foremen. The highest expected percentage for written communication is between the foremen and their superiors--forty-two per cent. The forty per cent figure for written interaction with other foremen ranks above the thirty-one per cent for their relationships with subordinates.

Even though both the low and the high productive foremen consider written communication with other foremen to be of lesser significance than their production supervisors, there is some disagreement between these two categories of foremen. Low productive foremen considered written interaction twice as important as the high productive. This is in contrast to the written patterns for interacting with subordinates. In the latter case the high productive foremen considered written acts three times as important as the low productive foremen. Although the low productive consider written interaction twice as

important as the high productive foremen when conversing with other foremen, the production supervisors expect more than twice as much as the low productive exercise.

A Spearman rank correlation coefficient computed to examine the relationship of foremen and production supervisors for the amount of time spent on each task interacting with other foremen was significant at the .05 level of confidence (one-tailed). An r_s .7213 therefore, suggests a strong relation between the foremen and production supervisors as the tasks requiring the most interaction with other foremen.

The comparison between the high and the low productive foremen presents a contrasting picture. Although the per cent of time devoted to interaction with other foremen appears to be correlated highly between all of the foremen and the high productive foremen; and between production supervisors and low productive foremen, such does not appear to be a valid assumption according to the Spearman rank correlation. With a rank correlation (r_s) .5122, there is no significant association between high and low productive foremen as to the amount of time spent to interact with other foremen for each task. There is a significant difference between the per cent of time spent on each task per week communicating with other foremen.

Thus, from the results related to interaction patterns between foremen with other foremen, several points can be

concluded. First, the foremen do not consider written channels of importance when explaining company policies (task #7). Second, production supervisors expect more interaction among foremen than is being utilized. Third, foremen use written communication more with interaction among themselves than when contacting superiors or subordinates. However, the per cent of written communication used by the foremen compares to one-fourth that expected by their production supervisors. And finally, in relation to interaction with superiors and other foremen, the low productive foremen consider written communication channels more than the high productive. However, the reverse is true in relation to contact with subordinates.

Amount of Time Requiring No Interaction

Organizational theorists have been concerned with the relationship between foremen and superiors; foremen and subordinates; foremen and foremen. Also the revisionists and human relationists have become interested in the amount of time the foremen spend on self-evaluation or on activities that do not require interaction upward, downward, or horizontal.

In relation to the ten tasks examined in this case study, the per cent of foremen's time per week spent on self-evaluation (or the amount of time not requiring any interaction) holds significant meaning in interaction network analysis. The data collected can be examined in

TABLE 27.--Amount of time requiring no interation. (in per cent)

Task	All Foremen	(Rank)	Production Supervisors	(Rank)	High Productive	(Rank)	Low Productive	(Rank)
#1	17.5	(7.5)	13.6	(5)	18.5	(9)	24.2	(5)
#2	25.8	(4)	14.3	(4)	28.1	(6)	13.6	(6)
#3	33.7	(2)	10.7	(6.5)	28.0	(7)	28.2	(1)
#4	20.9	(6)	----	(9.5)	40.0	(2)	5.5	(7.5)
#5	17.5	(7.5)	7.1	(8)	25.0	(8)	25.0	(3)
#6	5.3	(9)	20.0	(2.5)	30.0	(5)	----	(9.5)
#7	21.8	(5)	10.0	(6.5)	66.7	(1)	----	(9.5)
#8	4.6	(10)	----	(9.5)	----	(10)	5.0	(7.5)
#9	37.7	(1)	20.0	(2.5)	38.9	(3)	25.0	(3)
#10	26.8	(3)	35.7	(1)	33.3	(4)	25.0	(3)

The figures in Table 27 relate to the per cent of time each week which requires no interaction for each task. This refers to the per cent of the total week. The figures in parenthesis rank the percentages in accordance with the greatest amount of time devoted to the ten tasks.

All of the foremen tend to be more independent than expected by their production supervisors. Likewise, the high productive foremen are more independent than the low productive; as well as the average of the foremen sampled.

TABLE 28.--Summary of the amount of time requiring no interaction for ten tasks.

	All Foremen	Production Supervisors	High Productive	Low Productive
Per cent of total devoted to ten tasks requiring no interaction	22.6	13.1	26.6	21.0

In the previous analysis, the high productive foremen have been less dependent on superiors and other foremen, and more dependent upon subordinates than the low productive foremen. This independence also exists in the preceding table. Approximately twenty-seven per cent of their weekly activities require no interaction with superiors, subordinates, or other foremen. The low productive foremen,

although more dependent on others, spend twenty-one per cent of their weekly efforts on self-evaluation or activities requiring no interaction. These figures are greater than the thirteen per cent expected by the production supervisors.

Considering the amount of time devoted to each task, a Spearman rank correlation coefficient was computed to determine the relationship between the ranks in the above table. There was no significant rank correlation between the production supervisors and their foremen. The same results were computed between the high and low productive foremen. For example, when explaining company policy (task #7), the high productive foremen spend sixty-six per cent of their time on self-evaluation, whereas the low productive do not indicate any time. A similar contrast can be seen in relation to cooperating with other foremen and reporting matters to management (task #6). The high productive foremen estimate thirty per cent of their time requires no interaction. Comparative examples can be noted between all of the foremen and their production supervisors. Analysis of production costs (task #9) does not require interaction thirty-seven per cent of the foremen's time, but the production supervisors only expect twenty per cent. The training and locating of workers (task #3) involves thirty-four per cent of the foremen's time, but their superiors expect only eleven per cent.

Therefore, the amount of time requiring no interaction for the ten tasks provides an interesting picture. First, the foremen depend more on themselves than subordinates, superiors, or other foremen; this is more than expected by the production supervisors. Second, both the high and the low productive foremen are more independent than expected by their superiors. Third, the tasks requiring no interaction do not correlate between all of the foremen and their production supervisors, nor between high and low productive foremen. And finally, the foremen's independency varies according to the task being performed.

Relationship of Leadership Opinion Questionnaire Scores and Productivity Ratings

The Fleishman Leadership Opinion Questionnaire given to each foreman measures two independent variables of supervisory leadership: "structure" and "consideration." The first of these scales measures the tendency to initiate ideas, to plan, or to lead individuals toward specific goals. The "consideration" scale, however, evaluates the extent to which the foreman has the ability to establish rapport with his workers.

A comparison was made to determine if the productivity ratings of the foremen would correlate with the results on the Leadership Opinion Questionnaire. If a high rank correlation occurred, then this questionnaire

might be used to predict the productivity ratings of foremen instead of the subjective evaluation used by the manufacturing superintendent.

The Spearman rank correlation coefficient was computed to determine this relationship. However, the rank correlation coefficient was not significant (r_s of .2072) between the productivity ratings and the "consideration" scores of the foremen.

A similar result was computed between the productivity ratings of the foremen and the "structure" scale. A rank correlation coefficient (r_s) .3547 likewise was not significant at the .05 level of confidence (one-tailed). These rank correlations were determined by comparing the productivity rating given to each foreman by the manufacturing superintendent and the rank of scores in relation to the other foremen obtained on each scale.

An additional correlation was computed between the foreman's rank on the "consideration" scale and the "structure" scale. According to Fleishman validity and reliability studies, these two scales should not be correlated; but be independent. These findings were substantiated since they were not significant at the .05 level of confidence (one-tailed).

Therefore, it can be concluded that the Fleishman Leadership Opinion Questionnaire cannot be used in place of the productivity evaluations of the manufacturing

superintendent since the rank correlations were not significant.

Overall Interaction Patterns

From the above data, considering the amount of time spent on each task (as well as the importance of each task), a summary table can be constructed to illustrate the overall interaction patterns of the foremen in this case study (see Table 29). These patterns,oral and written, can be compared to the expected networks of the production supervisors. All of these tasks require upward, downward, horizontal, and self-evaluation channels. A detailed overall interaction table for all of the foremen, the production supervisors, the high productive foremen, and the low productive foremen can be found in Tables 31 to 34.

The foremen as a whole devote less time interacting with superiors, subordinates, and other foremen than expected by their production supervisors, however, they spend more time than expected on activities requiring no interaction. Second, both the foremen and their immediate superiors agree that approximately one-half of the work week requires contact with subordinates. Third, the high productive foremen are more independent and less dependent on superiors and other foremen than are the low productive. This same characteristic can be seen in relation to activities requiring no interaction. And finally, a

TABLE 29.--Overall interaction patterns. (in per cent)

	To Superiors (Written)		To Subordinates (Written)		To Other Foremen (Written)		No Interaction
All Foremen	16.5	(9.4)	44.6	(8.5)	16.3	(11.9)	22.6
Production Supervisors	18.1	(42.1)	47.5	(30.9)	20.6	(39.7)	13.1
High Productive	11.2	(14.3)	44.2	(21.1)	16.9	(8.0)	26.6
Low Productive	15.9	(29.7)	44.0	(6.3)	20.3	(16.9)	21.0

significant difference can be found in the per cent of written communication expected and the amount exercised by the foremen.

TABLE 30.--Per cent of total week requiring written interaction.

	Per Cent
All foremen	7.3
Production supervisors	30.7
High productive	12.4
Low productive	7.5

If the total hours for one week (including interaction with: superiors, subordinates, other foremen, and activities which require no interaction) were divided by the amount of time spent on written communication, the computations would construct the above table. Thirty per cent of the total interactions of the foremen are expected to be written, but the foremen only consider seven per cent important. However, as a whole the high productive foremen rely more on this channel of interaction than the low productive primarily because of their heavy reliance on written communication with subordinates. The low productive foremen consider this channel more than the high production in relation to interaction with superiors and

other foremen. Thus, a small portion of the week is devoted to written communication, although the production supervisors expect four times as much from their foremen.

TABLE 31.--All foremen--interaction patterns in per cents.

Task	Amount of Time Devoted	Importance of Task	Interaction with Superiors		Interaction with Subordinates		Interaction with Other Foremen		No Interaction
#1	28.2	1	13.6	(11.7)	54.1	(10.0)	14.8	(23.8)	17.5
#2	17.8	3	15.7	(14.9)	40.7	(18.6)	17.9	(7.1)	25.8
#3	18.2	2	5.96	(5.4)	51.8	(2.4)	8.5	(21.8)	33.7
#4	5.1	7	23.1	(4.96)	54.1	(.4)	1.9	(2.9)	20.9
#5	8.3	4	13.5	(7.9)	58.0	(11.95)	11.0	(10.9)	17.5
#6	6.3	6	37.9	(10.3)	5.3	(8.6)	51.5	(8.6)	5.3
#7	2.3	9	----	(----)	69.1	(----)	9.1	(----)	21.8
#8	2.5	10	22.4	(.97)	45.4	(5.8)	27.7	(.79)	4.6
#9	4.4	8	34.6	(1.3)	12.9	(.48)	14.8	(.42)	37.7
#10	6.8	5	29.3	(10.6)	20.7	(----)	23.2	(.17)	26.8

TABLE 32.--Production supervisors--interaction patterns in per cents.

Task	Amount of Time Devoted	Importance of Task	Interaction with Superiors		Interaction with Subordinates		Interaction with Other Foremen		No Interaction
#1	13.8	3.5	15.2	(40.0)	54.5	(36.6)	13.6	(33.3)	13.6
#2	17.5	1	21.4	(46.7)	42.9	(15.0)	21.4	(26.7)	14.3
#3	17.5	2	7.1	(5.0)	71.4	(38.0)	10.7	(20.0)	10.7
#4	7.5	6	16.7	(55.0)	66.7	(40.0)	16.7	(50.0)	----
#5	8.8	3.5	21.4	(56.7)	42.9	(46.7)	28.6	(60.0)	7.1
#6	6.3	7	40.0	(60.0)	----	(----)	40.0	(80.0)	20.0
#7	6.3	5	----	(----)	70.0	(46.0)	20.0	(20.0)	10.0
#8	7.5	10	25.0	(20.0)	50.0	(----)	25.0	(----)	----
#9	6.3	9	30.0	(26.7)	30.0	(6.7)	20.0	(50.0)	20.0
#10	8.8	8	14.3	(50.0)	21.4	(20.0)	28.6	(47.5)	35.7

TABLE 33.--High productive foremen--interaction patterns in per cent.

Task	Amount of Time Devoted	Importance of Task	Interaction with Superiors		Interaction with Subordinates		Interaction with Other Foremen		No Interaction
#1	33.5	1	11.1	(15.0)	62.0	(20.4)	8.3	(31.1)	18.5
#2	20.0	3	14.1	(11.1)	31.3	(80.0)	26.6	(2.4)	28.1
#3	15.6	2	4.0	(----)	52.0	(.3)	16.0	(----)	28.0
#4	4.7	8	13.3	(----)	46.7	(.95)	----	(----)	40.0
#5	6.2	5	20.0	(25.0)	50.0	(----)	5.0	(----)	25.0
#6	3.1	6	25.0	(14.7)	20.0	(----)	25.0	(45.3)	30.0
#7	1.9	9	----	(----)	33.3	(----)	----	(----)	66.7
#8	1.6	10	20.0	(----)	50.0	(----)	30.0	(----)	----
#9	5.6	7	22.2	(----)	16.7	(----)	22.2	(----)	38.9
#10	7.5	4	12.5	(50.0)	8.3	(----)	45.8	(----)	33.3

TABLE 34.--Low productive foremen--interaction patterns in per cent.

Task	Amount of Time Devoted	Importance of Task	Interaction with Superiors		Interaction with Subordinates		Interaction with Other Foremen		No Interaction
#1	40.0	1	11.7	(9.1)	48.4	(1.6)	15.6	(19.0)	24.2
#2	11.9	3	17.1	(32.3)	44.7	(.1)	24.6	(.1)	13.6
#3	19.4	2	11.3	(2.2)	43.5	(6.7)	16.9	(38.4)	28.2
#4	4.4	6	15.0	(30.2)	71.4	(.66)	8.1	(2.9)	5.5
#5	5.6	4	8.3	(2.2)	55.6	(60.0)	11.1	(50.0)	25.0
#6	4.1	5	25.6	(43.0)	----	(----)	74.4	(21.4)	----
#7	2.2	9	----	(----)	64.3	(----)	35.7	(----)	----
#8	2.5	10	29.2	(----)	22.9	(----)	42.9	(----)	5.0
#9	5.0	8	31.3	(----)	21.9	(----)	21.9	(----)	25.0
#10	5.6	7	25.0	(----)	31.3	(----)	18.8	(----)	25.0

CHAPTER VI

SUMMARY AND DISCUSSION

Summary

The basic purpose of this case study was to examine the interaction patterns for ten specific tasks of foremen in an industrial setting. These tasks provided a method of examining the direction of interaction for each function but also outlined weekly communication patterns. The foremen were asked to estimate the amount of time spent each week interacting with their superiors, subordinates, other foremen, and the time devoted to activities requiring no interaction for each of these tasks. Their patterns were then compared to those expected by their immediate superiors. The channels--written or oral--used for these functions were also examined.

Not only were the patterns compared between the production supervisors and the foremen, but likewise between the high and the low productive foremen. The productivity ratings were foremen ranks provided by the manufacturing superintendent. The high productive were chosen as the top twenty-seven per cent of the total sampled and the low productive foremen consisted of the bottom twenty-seven per cent.

Therefore, ten specific tasks were chosen to be used for interaction analyses. These patterns for the foremen were examined according to their relationship with superiors, subordinates, other foremen, and self-evaluation. A comparison could be made between patterns of the foremen and those expected by the production supervisors, as well as between the high and the low productive foremen.

Four primary variables were considered. Relying on the SMCR theory, the following variables provided the foundation for this study.

Source	=	foremen/production supervisors
Message	=	ten specific tasks
Channel	=	written or oral interaction
Receiver	=	superiors/subordinates/other foremen/no interaction required

In relation to the "source," the productivity ratings by the manufacturing superintendent determined the difference between the most efficient and least efficient foremen. Likewise, the "source" was examined according to the scores on the Leadership Opinion Questionnaire. The "message" variable was defined as the ten specific tasks. These served as the content of interaction for the foremen and the production supervisors.

Previous research (such as the work of the Dale Level and Darrell Piersol) have attempted to determine the importance of the written versus the oral forms of interaction. This same evaluation was defined in this study as the "channel" of relationship between levels of organizational

positions. In contrast to the "source" of the interaction, the "receiver" became the fourth variable to be considered in this case study.

In the first chapter, a review of the organizational trends and managerial concepts was presented to provide a foundation for this investigation. The principles emphasized by the early influence of the scientific management theorists, the human relationists, and the revisionists outlined the three major areas of theoretical exploration. The basic principles of the theorists included in each group were also combined to form common threads woven throughout the previous years of research. These key points provided the springboard for the basic questions examined in this investigation.

The second chapter focused on these basic concepts which have been researched to evaluate further their basic purposes and criticisms. A review of the literature accented previous investigations that related to the examination of interaction patterns found in formal organizations, and the human characteristics affecting the patterns of behavior relevant to the "source" of interaction.

The basic purposes and major questions of this case study were researched in a medium-sized machinery manufacturing plant located in the midwest. Two levels of authority were chosen from the total employment of eight hundred persons. Fifteen foremen and two production supervisors

provided the basic data used in this study, with additional assistance from the manufacturing superintendent--who supplied the productivity ratings.

Each of the foremen received an envelope containing five major items. First, a cover letter described the basic purpose of the questionnaires as well as the proposed use of the results. Second, the foremen were asked to take the Leadership Opinion Questionnaire to evaluate their scores on the "structure" and "consideration" scales. The latter scale refers to the ability of the foremen to emphasize rapport; whereas the "structure" scale measures their tendency to initiate ideas, to plan, or to direct a group toward prescribed goals.

Specific information concerning the descriptive characteristics of the foremen constituted the third portion of the enclosed material. This included such information as length of service, length of time on supervision, age, and educational training. Fourth, the ten specific tasks were to be ranked in order of importance as the foremen considered them in supervising efficiently their department. A number "1" ranking was marked next to the task most important in the weekly activities. The second most important task received a number "2" marking on this form. And finally, the subjects were asked to examine these tasks in relation to: the amount of time spent per week on each task, the direction of interaction necessary to carry out

efficiently the task; and the manner of carrying out the task--written or oral. Data collected from this portion of the questionnaire provided the majority of the needed information to examine the patterns of interaction for each of the ten tasks, as well as the overall patterns. A comparison could then be made between the foremen and their supervisors, and the high and the low productive foremen.

Thus, the foremen gave their reading on the interaction patterns used to perform each task, and the production supervisors outlined the expected patterns for their foremen. A further comparison was made by the productivity ratings.

Conclusions

Chapter III outlined the basic questions for this investigation. From the results presented in the last chapter, some conclusions can be drawn in relation to these specific questions.

Ranked Importance of Ten Tasks

The first two basic questions relate to the rank order of importance for the ten tasks, as perceived by the foremen and their immediate superiors. The perceptional differences of task relationships between foremen and production supervisors influence the desired and actual interaction patterns, as well as the productivity ratings. Sometimes a close

agreement of mind is advantageous for the production supervisors since they make subjective evaluations of the foremen. However, at the same time if every foreman and his immediate superiors consider each task of equal importance, autocratic tendencies may exist and create limitations of new concepts and procedures.

In this case study, there was a high rank correlation between the high and the low productive foremen which was significant at the .01 level of confidence. All of the foremen and their immediate superiors also correlated significantly; although the coefficient was not as high. However, in relation to the two basic questions proposed in Chapter III, there is a significant rank correlation between the foremen and the production supervisors for perceived importance of the ten tasks, with the primary disagreement related to the importance of explaining company policies (task #7) and the importance of analyzing departmental efficiencies (task #10). The high and the low productive foremen agreed on the importance of explaining company policies, but disagreed with the significance of analyzing departmental efficiency. Thus, as a whole the foremen and the production supervisors perceived task importance similarly.

Considering the background of the foremen and the production supervisors, it was predicted there would be no significant difference. All but one of the foremen,

including the production supervisors, had been promoted from the rank-and-file. Therefore, their training as to the importance of these tasks came while on production jobs, as well as instructions received as a foreman. Likewise, something could be said about the atmosphere of freedom within the organization. Perhaps the air of agreement is good from the standpoint of perceiving activities alike; however, the strength of this relationship depends on the company's goal. If the production supervisors are trained to promote these prescribed goals, the high correlation would be productive. If the supervisors disagree with these goals, this relationship would not be beneficial.

Importance of Task and Amount of Time Spent

The importance of each task and the amount of time spent each week on a specific task composed the basis for three questions proposed in Chapter III. A significant rank correlation was computed for the foremen, the production supervisors, and the high and the low productive foremen. However, the correlation for the production supervisors was significant at the .05 level of confidence, whereas the others were significant at the .01 level.

The production supervisors and the foremen correlated highly on the first three tasks. However, since the supervisors expected a more balanced approach for the tasks requiring the minority of the work hours, the rank

correlation was not as significant as the relationship of the foremen. This would suggest that foremen understand the thinking of their immediate superiors in relation to the most important tasks and attempt to direct the majority of their efforts in this direction. However, the foremen consider the tasks of lesser importance worthy of less time but not necessarily in order of importance.

The high rank correlation for the high and the low productive foremen accents the fact that foremen with similar backgrounds and positions know how to impress their superiors on the most important tasks, but are not as concerned with those of lesser importance. The highest rank correlation between the importance of the task and the amount of time spent was expressed by the high productive foremen.

Therefore, the production supervisors and their foremen correlate significantly on the ranked importance of the ten tasks, but they do not agree completely on the distribution of time in relation to the importance of each. The foremen devoted more time to: maintaining quality and quantity of production (task #1); planning and scheduling (task #2); and training and locating workers (task #3) than expected by their immediate superiors. Likewise, the other seven tasks did not receive the expected attention in accordance with the ranked importance.

Perhaps there is some correlation due to the background of the foremen and their immediate supervisors. However, the disagreement on time distribution may result from the fact that when the production supervisors were in the position of the foremen, they perhaps saw a need to spend more time on the tasks of lesser importance but could never organize their activities to fulfill these needs. However, when they were promoted to a higher position, they expected a more conscious attempt in this direction.

Patterns of Interaction

The sixth and seventh basic questions for this case study related to the interaction patterns of foremen with their superiors, their subordinates, other foremen, or self-interaction. The production supervisors expected a more balanced pattern than displayed by the foremen. They expected these "marginal men" to spend forty-seven per cent of their work week interacting with their subordinates, with an additional twenty per cent with other foremen, and eighteen per cent contacting their superiors. The remaining time of the week's activities should require no interaction.

The foremen, however, were less dependent on their superiors, their subordinates and other foremen. Twenty-three per cent of their weekly activities did not require any interaction, although they spent the majority of their time communicating with their subordinates. This pattern

was especially true in relation to training and locating workers (task #3), and planning and scheduling of manpower (task #2). There were only two tasks that the production supervisors expected more time devoted to activities requiring no interaction. The first of these refer to the importance of cooperating with other foremen and reporting matters to management (task #6). And the second, relates to the foreman's responsibility to analyze the efficiency of his department (task #10).

According to the overall patterns reported in the previous chapter, the high productive foremen were more independent than the low productive foremen. The latter devoted more time to communicating with their superiors and other foremen, with fewer activities requiring no interaction. This trait was especially true with tasks that required analytical thinking, such as production costs (task #9), departmental efficiencies (task #10), and adjusting and handling grievances (task #4). However, even though the low productive foremen were more dependent on upward and horizontal channels than the high productive foremen, they devoted less time interacting with their superiors than <u>expected</u> by their production supervisors. Therefore, from an overall standpoint, the foremen were more independent than expected by their immediate superiors. And secondly, the high productive foremen were more self-sufficient than the low productive foremen.

The position taken by the production supervisors stems from a belief that foremen must devote approximately half of their work week interacting with subordinates, and depend as much on other foremen as their superiors. However, the foremen spend more time than expected on functions requiring no interaction and depend less on their superiors and other foremen. The exposure of inefficiencies would be one reason for this interaction pattern. Especially could this be true with the high productive foremen who interact only eleven per cent of the work week with superiors and seventeen per cent with other foremen. However, twenty-seven per cent of their activities do not require any interaction. Perhaps they are more efficient and secure than the low productive foremen in the eyes of the production supervisors; however, if more contact was made with superiors and other foremen the same productive ratings might not be given. This explanation may not be valid. It would appear, though, that the high percentage of activities requiring no interaction could be a combination of the two positions explained above. As for the low productive foremen their interaction patterns suggest dependence on superiors and other foremen which would provide an opportunity for their efficiencies to be examined more thoroughly.

In short, three positions can be taken to explain the difference between the low and the high productive foremen. First, the high productive do not interact as much with

superiors and other foremen and, therefore, cover their weaknesses. Second, the high productive foremen are more skilled and require less contact with other positions of authority. Or third, a combination of these may be the valid explanation.

From a directional standpoint, there are several observations to be made. First, the foremen interact with superiors primarily in relation to tasks requiring analyses. This refers likewise to the high and the low productive foremen. Second, interaction among the foremen appears to be focused on tasks requiring analysis or of a lighter nature such as social conversation. The tasks requiring the most time each week for the foremen are accomplished without much reliance upon other foremen, and this is less than that expected by their production supervisors. The high productive foremen rely a great deal on other foremen for analysis (task #10) whereas the low productive foremen achieve added support from their superiors. The social conversation for the high productive foremen is directed to the subordinates primarily, but thirty per cent with other foremen and twenty per cent with superiors. In contrast, the low productive socialize the majority of the time with their superiors and other foremen.

Third, the foremen and the production supervisors agree that approximately half of the work week should require interaction with their subordinates. This

correlation can be examined more closely for each task. There is little variance for subordinate interaction between the amount expected and the time spent on each task. And fourth, more weekly activities require no interaction than expected in relation to topics concerning planning and training (task #3), handling of grievances and building morale (task #4), and the promotion of safety and good housekeeping (task #5). The production supervisors expected these tasks to require no interaction, but the foremen accomplished these by depending on superiors and other foremen.

Therefore, several conclusions can be drawn about the interaction patterns of foremen. First, the foremen are more independent than expected by their immediate superiors. Second, the high productive foremen appear to be more independent than the low productive foremen, but they rely on other foremen to help with analytical situations. Third, the foremen in total rely on superiors for analytical tasks. Fourth, approximately one-half of the total work week requires interaction with subordinates. And finally, the foremen depend less on other foremen than expected; especially the low productive foremen.

Method of Interaction

Perhaps the most significant conclusion that can be extracted from the data collected in this case study relates

to the method of interaction. The production supervisors expected more written communication between foremen and superiors; between foremen and subordinates; and between foremen and other foremen than considered essential by the foremen themselves. The production supervisors expected the greatest per cent of the written interaction to be with superiors. They expected forty-two per cent of the contact with superiors, which was approximately four times the time spent by the foremen. A similar contrast can be seen between the foremen interacting with other foremen. Approximately forty per cent of the communication among foremen is expected to be written. However, the foremen estimate it is important to rely on this form of interaction only twelve per cent of the time. The least amount of written communication is expected by the production supervisors with subordinates--only thirty per cent.

A comparison between the high and the low productive foremen supports the following conclusions. The low productive foremen rely more on written interaction with superiors and other foremen, but spend one-third as much time as the high productive foremen when contacting subordinates.

However, if an analysis was made in relation to the total amount of hours worked (including "no interaction") compared to the per cent of this which requires written interaction, the results would demonstrate the production supervisors expect four time more written communication

than the foremen utilize. The high productive foremen, on the other hand, rely more on this channel than the low productive primarily because of their emphasis on using written communication with subordinates (twenty-one per cent of the time). Even though the low productive foremen use this method more than the high productive with superiors and other foremen, as a whole the latter used the written channels more during a week's activities. Therefore, there is a difference between the use of written channels between the foremen and the production supervisors, as well as between the high and the low productive foremen.

Relation Between Objective and Scientific Productivity Ratings

The Leadership Opinion Questionnaire did not correlate on either the "structure" or the "consideration" scales with the productivity ratings of the manufacturing superintendent. If there would have been a high rank correlation of scores, this questionnaire could have been used in place of an subjective evaluation for predicting the productivity of prospective foremen as well as an instrument for evaluating the present foremen. However, the relationship between these two methods of evaluation was not significant.

One explanation for this difference could be that the manufacturing superintendent evaluated the performance of his foremen, whereas the questionnaire deals with the potential on both measurement scales. This would mean those

receiving a high productivity rating from the manufacturing superintendent might be closer to their potential than the lower rated foremen. And a second explanation might be that the manufacturing superintendent based his productivity ratings on the agreement between his personal guidelines on productivity and those patterns agreeing with his. Rather than use the definition provided for this investigation, he may have considered a foremen productive if he supplied him with key information about various matters of the plant, or if he was influenced by the foreman's extent of experience. These variables would not be included in the leadership potential measured on the Fleishman questionnaire.

In any event, another scientific measure must be used if the productivity ratings of the manufacturing superintendent are to be correlated. In the meantime, the Leadership Opinion Questionnaire could be utilized for sampling potential.

From the data reported in the previous chapter, and from the conclusions discussed in this chapter, there is sufficient support for the statement that organizational channels are complex and require a series of specific studies at locations with a large sample to draw generalized conclusions. This is especially true since the structure is correlated with the personnel, and the human elements are influenced by the organizational structure. However, in this case study the primary purpose was to describe and

analyze the interaction patterns for ten specific tasks. The above statement report the results, although there are other avenues for exploration. These will be discussed in the following section.

Suggestions for Further Research

The study of actual organizational structures challenges the available mental capacities and measuring instruments. Since the organization is composed of individuals, the individuals became the key variable. Many factors affect the behaviors of individuals and it is not always possible to define, to measure, or to determine their importance from a sample. However, with the advancement of computers and behavioral science research the challenge can be approached more scientifically.

In this case study attention was directed to the source, the message, the channel, and the receiver of weekly activities of industrial foremen. Several additional research projects can stem from this investigation.

First, this study should be duplicated with a larger number of foremen and production superiors. With a small sample, it is difficult to generalize to different types of industrial settings. These tasks exist in other operations and, therefore, the adaptability to another setting would be possible.

Second, with a larger size sample it would be possible to examine the interaction patterns of foremen in different types of departments. For example, do the foremen with

technical knowledge have the same or similar patterns as those not requiring these skills? Foremen supervising machinists perhaps would encounter different problems than those supervisors overseeing the activities of employees not stationed at one location.

Third, interaction patterns should be compared and examined at other levels of the organizational structure. Do general foremen and department heads interact with superiors, subordinates, and other foremen on the same ratio as the manufacturing foremen? What difference exists between the expected and the actual patterns at these levels in relation to their immediate superiors? Since an organization has varying levels of authority, the interaction pattern could be examined at each level and compared.

Fourth, a comparison could be made at the foremen level as to the use of the formal and the informal channels, as well as the most desired patterns. The formal channels are designed by management to achieve a specific purpose. However, the informal structure often becomes the guiding pattern. A third structure may exist if the foremen express the most desired structure. Then a comparison could be made between the suggested relationships and those designed by management.

Fifth, many theorists have devoted their efforts to studying the organizational structure from the management point of view. Perhaps a similar evaluation should be

considered from the position of the labor union. What formal and informal channels are used by their committeemen? What interaction patterns do the union officers use to accomplish their designated goals? If it would be possible to thoroughly examine the organizational structure in the same location from the foreman's level and from the union's level, some interesting observations could be discovered.

One of the weaknesses found in studying an industrial structure is the lack of definite goals. What interaction patterns are used to accomplish specific organizational goals at each level of authority? It would appear that the most productive supervisor, or foreman, would be the most perceptive of the company's goals. In this case study ten specific tasks were used to examine interaction patterns, but a similar analysis could be made in relation to company goals.

Thus, there are several additional studies that could be explored by utilizing the four variables of this study: the source, the message, the channel, and the receiver. These could include investigation of more psychological and sociological factors of the foremen; more refinement of individual backgrounds being sampled (technical versus non-technical); more comparison between the formal, informal, and desired interaction patterns; comparison of patterns used to achieve individual goals as

well as organizational goals; and with a larger sample, consider the interaction patterns of the labor union and management in the same organizational structure.

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APPENDICES

APPENDIX I

QUESTIONNAIRE GIVEN TO THE FOREMEN

This is a study designed to obtain your opinion on supervisory responsibilities, time spent to accomplish various tasks, and some of the things you ordinarily expect of yourself as a supervisor at _____. The questions asked are for research purposes only at Michigan State University.

Naturally, people perceive their activities and responsibilities differently. For this reason we are asking your careful and honest opinion so that an overall impression can be obtained based on your responses to this questionnaire.

There are no right or wrong answers since you will be expressing your personal opinion. The individual responses that you give will be held in STRICT CONFIDENCE, and only general information will be released to the management of _____.

Please take your time to read each question carefully before you answer. There is no time limit, but be sure to answer each question.

Do not sign your name.

Please mark an "X" next to the most appropriate category.

PART I: General Information

1. How long have your worked with this company?

_____ Less than 5 years.
_____ 5 to 9 years.
_____ 10 to 19 years.
_____ 20 to 29 years.
_____ 30 to 39 years.

2. How long have you worked as a supervisor?

_____ Less than 5 years.
_____ More than 5 years but less than 10 years.
_____ More than 10 years but less than 20 years.
_____ More than 20 years.

3. How many people are you directly responsible for?

_____ Less than 10 people.
_____ 10 to 19 people.
_____ 20 to 29 people.
_____ 30 to 39 people.
_____ 40 to 49 people.
_____ 50 or more.

4. What was the last grade you completed in school or college?

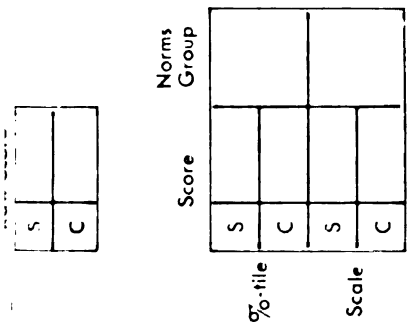
_____ 8 years or less.
_____ 9 to 11 years
_____ 12 years (high school diploma).
_____ 1 to 3 years of college.
_____ 4 years of college (degree).
_____ More than 4 years of college.

5. What is your age?

_____ 20 to 24 years of age.
_____ 25 to 29 years of age.
_____ 30 to 34 years of age.
_____ 35 to 39 years of age.
_____ 40 to 44 years of age.
_____ 45 to 49 years of age.
_____ 50 to 54 years of age.
_____ 55 to 59 years of age.
_____ 60 or over.

Leadership Opinion Questionnaire

by Edwin A. Fleishman



INSTRUCTIONS:

For each item, choose the alternative which most nearly expresses your opinion on how frequently you *should* do what is described by that item. Always indicate what you, as a supervisor, or manager, sincerely believe to be the desirable way to act. Please remember there are no right or wrong answers to these questions. Different supervisors have different experiences and we are interested only in your opinions.

Answer the items by marking an "X" in the box before the alternative that best expresses your feeling about the item. *Mark only one* alternative for each item. If you wish to change your answer, draw a circle around your first "X" and mark a new "X" in the appropriate box.

S R A
SCIENCE RESEARCH ASSOCIATES, INC.
259 EAST ERIE STREET, CHICAGO 11, ILLINOIS

Reorder No. 7-651

Name ____ (Last) ____ (First) ____ (Middle) ____ Position ____ Date ____
Company ____

1. Put the welfare of your unit above the welfare of any person in it.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

2. Give in to your subordinates in discussions with them.
- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very Seldom

3. Encourage after-duty work by persons of your unit.
- ☐ A great deal
- ☐ Fairly often
- ☐ To some degree
- ☐ Once in a while
- ☐ Very seldom

4. Try out your own new ideas in the unit.
- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

5. Back up what persons under you do.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

6. Criticize poor work.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

7. Ask for more than the persons under you can accomplish.
- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

8. Refuse to compromise a point.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

9. Insist that persons under you follow to the letter those standard routines handed down to you.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

10. Help persons under you with their personal problems.
- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

11. Be slow to adopt new ideas.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

12. Get the approval of persons under you on important matters before going ahead.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

13. Resist changes in ways of doing things.
- ☐ A great deal
- ☐ Fairly much
- ☐ To some degree
- ☐ Comparatively little
- ☐ Not at all

14. Assign persons under you to particular tasks.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

15. Speak in a manner not to be questioned.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

16. Stress importance of being ahead of other units.
- ☐ A great deal
- ☐ Fairly much
- ☐ To some degree
- ☐ Comparatively little
- ☐ Not at all

17. Criticize a specific act rather than a particular member of your unit.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

18. Let the persons under you do their work the way they think is best.
- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

19. Do personal favors for persons under you.
- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

20. Emphasize meeting of deadlines.
- ☐ A great deal
- ☐ Fairly much
- ☐ To some degree
- ☐ Comparatively little
- ☐ Not at all

Check Col. 1	Check Col. 2	Check Col. 3	Check Col. 4
s	s	s	s
c	c	c	c

Score Col. 1	Score Col. 2	Score Col. 3	Score Col. 4	Total Score
s	s	s	s	s
c	c	c	c	c

SCORING INSTRUCTIONS:

1. This Questionnaire yields two scores, one for *Structure* (S) and one for *Consideration* (C). "X's" placed in *boxes* are scored for *Structure*, and "X's" appearing in *circles* are scored for *Consideration*. These boxes and circles are arranged in sets of five, corresponding to the five choices for each item. On the right side of each box or circle is a number which shows the "score points" on "S" or "C" that an answer in that space should receive. There should be only one "X" answer in each set of five. Note that "X's" circled by the examiner are not counted ⊗.

2. Starting from the top of Column 1, add the number of score points in the boxes in Column 1. Record the sum in the "S" score box at the *bottom* of the column.

3. Again starting at the top of Column 1, add the number of score points in circles and record the sum in the "C" score box at the *bottom* of the column. In the same way, add the score points in the boxes and in the circles for the other three columns and record the scores under "S" and "C" at the bottom of each column.

4. Check your work by a second adding of the score points for "S" and "C" in each column. This time begin at the bottom and add up. Record the check scores at the top of the page and compare these scores with those recorded in the boxes at the bottom of each column. If a score does not agree, add the column again.

5. When all column scores for "S" and "C" are correct, add the column scores for each scale and record the total score for "S" and "C" in the total score box at the lower right-hand corner. Transfer these total scores to the appropriate boxes on the front of the test booklet.

21. Insist that you be informed on decisions made by persons under you.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

22. Offer new approaches to problems.

- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

23. Treat all persons under you as your equals.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

24. Be willing to make changes.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

25. Talk about how much should be done.

- ☐ A great deal
- ☐ Fairly much
- ☐ To some degree
- ☐ Comparatively little
- ☐ Not at all

26. Wait for persons in your unit to push new ideas.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

27. Rule with an iron hand.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

28. Reject suggestions for changes.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

29. Change the duties of persons under you without first talking it over with them.

- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

30. Decide in detail what shall be done and how it shall be done by the persons under you.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

31. See to it that persons under you are working up to capacity.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

32. Stand up for persons under you, even though it makes you unpopular with others.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

33. Put suggestions made by persons in the unit into operation.

- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

34. Refuse to explain your actions.

- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

35. Ask for sacrifices from persons under you for the good of your entire unit.

- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

36. Act without consulting persons under you.

- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

37. "Needle" persons under you for greater effort.

- ☐ A great deal
- ☐ Fairly much
- ☐ To some degree
- ☐ Comparatively little
- ☐ Not at all

38. Insist that everything be done your way.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

39. Encourage slow-working persons in your unit to work harder.

- ☐ Often
- ☐ Fairly often
- ☐ Occasionally
- ☐ Once in a while
- ☐ Very seldom

40. Meet with the persons in your unit at certain regularly scheduled times.

- ☐ Always
- ☐ Often
- ☐ Occasionally
- ☐ Seldom
- ☐ Never

In order to carry out the responsibilities of your position at _____ you must perform a variety of tasks. The importance of each task and the amount of time devoted to each will vary according to the department in which you are located. Below are listed the major tasks of supervisors. While there might be others, according to previous research these tasks form the basic framework of supervisory responsibilities. Which one do you consider the most important in doing a good job in supervising your department. That is, which one do you consider the most heavily? Mark that task with a number "1." Then, which task ranks second in importance in carrying out your duties and responsibilities. Place a number "2" beside that task. Number all the tasks in this way. Do not use the same number twice.

For example:

__3__ Auditing and evaluating your manpower.
__1__ Analyzing monthly expenses.
__4__ Socializing with others.
__2__ Handling human relation problems.

Rank the following ten tasks in this manner. The most important will be number "1," and the least important will be number "10."

_____ Maintaining quality and quantity of production.

_____ Planning and scheduling of manpower and production; planning and using supplies economically.

_____ Training workers; giving job information to workers; getting the right people on the right job.

_____ Adjusting and handling grievances; promoting cooperation, building morale.

_____ Promoting safety; maintaining good housekeeping.

_____ Cooperating with other foremen and departments; reporting matters to management.

_____ Explaining company policy.

_____ Engaging in social conversation.

_____ Analyzing costs of production.

_____ Analyzing efficiency of your department.

During the course of a 40 hour work week, you will be carrying out the ten basic tasks listed in Column (A) by interacting with your superiors, your subordinates, and other foremen. However, the amount of time directed to these various sources, and the manner of interaction, will be different for each task. Thus, we would like to have you estimate the answers to the following three questions on the charts provided.

I. Estimate the amount of time you devote in a 40 hour week to each of the ten tasks listed in Column (A). Place the total hours (or minutes) next to each task in Column (B). Please label the figures in Column (B) as to "minutes" or "hours." The sum of Column (B) should be 40 hours.

Columns:	(A)	(B)
TASKS:		TOTAL HOURS DEVOTED
1.	Maintaining quality and quantity of production.	
2.	Planning and scheduling of manpower and production; planning and using supplies economically.	
3.	Training workers; giving job information to workers; getting the right people on the right job.	
4.	Adjusting and handling grievances; promoting cooperation; building morale.	
5.	Promoting safety; maintaining good housekeeping.	
6.	Cooperating with other foremen and departments; reporting matters to management.	
7.	Explaining company policy.	
8.	Engaging in social conversation.	
9.	Analyzing costs of production.	
0.	Analyzing efficiency of your department.	
	TOTAL:	40 hrs.

II. After each task in Column(B) you have recorded the total amount of time devoted to that task in a 40 hour work week. Of this total for each task listed in Column (B), how much time (label estimate as "hours" or "minutes") do you spend interacting or conversing with:

1. Your Superiors? Place this amount in Column (C)
2. Your Subordinates? Place this estimate in Column (E)
3. Other Foremen? Place this in Column (G)

If a specific task does not require any interaction with one of the above, place in Column (I) the amount of self interaction. The sum of Columns (C), (E), (G), and (I) for each task should equal Column (B).

Columns: (A)	(B)	(C)	(E)	(G)	(I)
TASKS:	TOTAL HOURS DEVOTED	SUPERIORS Total	SUBORDINATES Total	OTHER FOREMEN Total	No Interaction Required
1. Maintaining quality and quantity of production.					
2. Planning and scheduling of manpower and production; planning and using supplies economically.					
3. Training workers; giving job information to workers; getting the right people on the right job.					
4. Adjusting and handling grievances; promoting cooperation; building morale.					
5. Promoting safety; maintaining good housekeeping.					
6. Cooperating with other foremen and departments; reporting matters to management.					
7. Explaining company policy.					
8. Engaging in social conversation.					
9. Analyzing costs of production.					
0. Analyzing efficiency of your department.					
TOTAL:	40 hrs.				

III. Some of your weekly interactions with your superiors, your subordinates, and other foremen will be accomplished by writing AVO notes, typing letters, writing speedy memos, or using other forms of paper-messages.

In Column (D) estimate the PERCENT of the total hours listed in Column (C) that you spend each week conversing on paper with your Superior.

In Column (F) place the PERCENT of time you spend writing to your Subordinates.
And list the PERCENT of time you devote to written interactions with Other Foremen. Place this in Column (H).

Columns: (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
TASKS:	TOTAL HOURS DEVOTED	SUPERIORS Total	SUPERIORS % Written	SUBORDINATES Total	SUBORDINATES % Written	OTHER FOREMEN Total	OTHER FOREMEN % Written	No Interaction Required
1. Maintaining quality and quantity of production.								
2. Planning and scheduling of manpower and production; planning and using supplies economically.								
3. Training workers; giving job information to workers; getting the right people on the right job.								
4. Adjusting and handling grievances; promoting cooperation; building morale.								
5. Promoting safety; maintaining good housekeeping.								
6. Cooperating with other foremen and departments; reporting matters to management.								
7. Explaining company policy.								
8. Engaging in social conversation.								
9. Analyzing costs of production.								
0. Analyzing efficiency of your department.								

TOTAL: 40 hrs.

APPENDIX II

QUESTIONNAIRE GIVEN TO THE PRODUCTION SUPERVISORS

This is a study designed to obtain your opinion on supervisory responsibilities, time spent to accomplish various tasks, and some of the things you ordinarily expect of your foremen as supervisors at _____. The questions asked are for research purposes only at Michigan State University.

Naturally, people perceive their activities and responsibilities differently. For this reason we are asking your careful and honest opinion so that an overall impression can be obtained based on your responses to this questionnaire.

There are no right or wrong answers since you will be expressing your personal opinion. The individual responses that you give will be held in STRICT CONFIDENCE, and only general information will be released to the management of _____.

Please take your time to read each question carefully before you answer. There is no time limit, but be sure to answer each question.

In order to carry out the responsibilities of their position at _____, your foremen must perform a variety of tasks. Below are listed the major tasks of manufacturing supervisors. Which one do you consider the most important task for your foremen in order to supervise their department effectively. That is, which one should they consider the most heavily? Mark that task with a number "1." Then, which task ranks second in importance in carrying out their duties and responsibilities. Place a number "2" beside that task. Number all the tasks in this manner. Do not use the same number twice.

For example:

__3__ Auditing and evaluating your manpower
__1__ Analyzing monthly expenses.
__4__ Socializing with others.
__2__ Handling human relation problems.

Rank the following ten tasks in this manner. The most important will be number "1," and the least important will be number "10."

_____ Maintaining quality and quantity of production; planning and using supplies economically.

_____ Planning and scheduling of manpower and production.

_____ Training workers; giving job information to workers; getting the right people on the right job.

_____ Adjusting and handling grievances; promoting cooperation; building morale.

_____ Promoting safety; maintaining good housekeeping.

_____ Cooperating with other foremen and departments; reporting matters to management.

_____ Explaining company policy.

_____ Engaging in social conversation.

_____ Analyzing costs of production.

_____ Analyzing efficiency of their departments.

During the course of a 40 hour work week, your foremen will be carrying out the ten basic tasks listed in Column (A) by interacting with their superiors, their subordinates, and other foremen. However, the amount of time directed to these various sources, and the manner of interaction, will be different for each task. Thus, we would like to have you estimate the answers to the following three questions on the charts provided.

I. Estimate the amount of time you expect your foremen to devote in a 40 hour week to each of the ten tasks listed in Column (A). Place the total hours (or minutes) next to each task in Column (B). Please label the figures in Column (B) as to "minutes" or "hours." The sum of Column (B) will be 40 hours.

Columns:	(A)	(B)
TASKS:		TOTAL HOURS DEVOTED
1.	Maintaining quality and quantity of production.	
2.	Planning and scheduling of manpower and production; planning and using supplies economically.	
3.	Training workers; giving job information to workers; getting the right people on the right job.	
4.	Adjusting and handling grievances; promoting cooperation; building morale.	
5.	Promoting safety; maintaining good housekeeping.	
6.	Cooperating with other foremen and departments; reporting matters to management.	
7.	Explaining company policy.	
8.	Engaging in social conversation.	
9.	Analyzing costs of production.	
0.	Analyzing efficiency of your department.	
	TOTAL:	40 hrs.

II. After <u>each</u> task in Column (B), you have recorded the total amount of time you expect your foremen to devote to that task in a <u>40 hour work week</u>. Of this total for each task listed in Column (B), how much time (label "hours" or "minutes") do you expect your foremen to interact or converse with:

1. Their Superiors? Place this amount in Column (C)
2. Their Subordinates? Place this amount in Column (E)
3. Other Foremen? Place the number of hours in Column (G)

If a specific task does not require any interaction with one of the above, place in Column (I) the amount of self interaction you would expect from your foremen. The sum of Column (C), (E), (G), and (I) for each task should equal Column (B) for each task.

Columns: (A)	(B)	(C)	(E)	(G)	(I)
TASKS:	TOTAL HOURS DEVOTED	SUPERIORS Total	SUBORDINATES Total	OTHER FOREMEN Total	No Interaction Required
1. Maintaining quality and quantity of production.					
2. Planning and scheduling of manpower and production; planning and using supplies economically.					
3. Training workers; giving job information to workers; getting the right people on the right job.					
4. Adjusting and handling grievances; promoting cooperation; building morale.					
5. Promoting safety; maintaining good housekeeping.					
6. Cooperating with other foremen and departments; reporting matters to management.					
7. Explaining company policy.					
8. Engaging in social conversation.					
9. Analyzing costs of production.					
0. Analyzing efficiency of your department.					
TOTAL:	40 hrs.				

III. Some of your foremen's weekly interactions with their superiors, their subordinates, and other foremen will be accomplished by writing AVO notes, typing letters, writing speedy memos, or using other forms of paper-messages.

In Column (D), estimate the PERCENT of the total hours listed in Column (C) that you think your foremen should spend each week conversing on paper with their superiors.

In Column (F) place the PERCENT of time they should spend writing to their subordinates.
And list the PERCENT of time they should devote to written interactions with other foremen. Place this in Column (H).

Columns: (A)	(B)	(C)	(D)	(E)	(F)	(G)	(H)	(I)
TASKS:	TOTAL HOURS DEVOTED	SUPERIORS Total	SUPERIORS % Written	SUBORDINATES Total	SUBORDINATES % Written	OTHER FOREMEN Total	OTHER FOREMEN % Written	No Interaction Required
1. Maintaining quality and quantity of production.								
2. Planning and scheduling of manpower and production; planning and using supplies economically.								
3. Training workers; giving job information to workers; getting the right people on the right job.								
4. Adjusting and handling grievances; promoting cooperation; building morale.								
5. Promoting safety; maintaining good housekeeping.								
6. Cooperating with other foremen and departments; reporting matters to management.								
7. Explaining company policy.								
8. Engaging in social conversation.								
9. Analyzing costs of production.								
0. Analyzing efficiency of your department.								
TOTAL:	40 hrs.							

APPENDIX III

QUESTIONNAIRE GIVEN TO THE MANUFACTURING SUPERINTENDENT

One of your responsibilities as a member of the management at _____ is to evaluate the productivity of your manufacturing foremen. The "productivity" in this case refers to the ability of the foremen to consistently get out the required work over a period of time with good quality, organize their department in order to achieve organizational goals, and establish rapport with their subordinates.

Considering the ability, the knowledge, and the consistency of each foremen, in what order would you rank the productivity ratings of each of the following foremen. Place a number "1" before the name you would rate the most productive. A number "2" should be written next to the name of the second most productive foreman. Rank all of the following in this manner.

Do not use the same number twice.

_____ Don Albaugh
_____ Carl Cavanagh
_____ Ken Carter
_____ Alan Hale
_____ Russell Hause
_____ Carrol Hawks
_____ Al Keefer
_____ Walt Keilholtz
_____ Ken Kellogg
_____ Clarence Krepps
_____ Harold Rademacher
_____ Harry Siedelberg
_____ Wayne Stettler
_____ Bob Storm
_____ Bob Sumner