

## SUPERVISORY STYLE IN INDUSTRY

THE INFLUENCE OF SOCIAL STRUCTURE, TECHNOLOGY, AND BACK-  
GROUND FACTORS ON SUPERVISORY STYLE  
IN INDUSTRY

by

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## ABSTRACT

This study was concerned with investigating the causes of supervisory style. To interpret certain dimensions of supervisory style, the superior-subordinate relationship was viewed as a role system. Four dimensions, which are empirically identified but theoretically related to essential conditions of role systems, were investigated: production orientation, worker orientation, closeness, and time allocation. It was argued that while the way a supervisor performs his role may vary along these dimensions, the range of variability is constrained by the social structure and technology of the work place and the background characteristics of the supervisor himself. The general hypothesis of the study was that supervisory style is the product of the interaction of these three factors.

Interviews were conducted with 114 first-line supervisors in seven industries to assess the effect of these factors. A "transitional model" that involved age as a significant variable influencing the closeness of supervision was developed. Three age groups (23-39, 40-49, 50-62) were considered as three periods - initial, transitional, and mature, in correspondence with each age group - which a foreman goes through. In each period the foreman responds to different influencing factors in his environment, so that his supervisory style changes. Two explanations were considered: a "maturational" and a "job security" explanation.

It was also found that most supervisors tend to be almost equally production-oriented and worker-oriented. The nature of production in

industry, preference of recruitment, and role conflict experienced by the supervisors were cited as explanations.

Support was found for the hypothesis that time allocation is influenced by technological factors. Planning and the general increment of paper work caused by technological advancement were considered as reasons accounting for this finding.

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This study could not have been accomplished without the co-operation of the members of the seven industries which provided the field setting. Regrettably, these persons must remain un-named to preserve their anonymity as well as that of their organizations. However, I would like to express my appreciation to the top managers who gave me permission to carry out the project in their organizations and the supervisors who participated in the formal interviews.

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## Chapter I

### INTRODUCTION

"Our society is an organizational society," begins Etzioni's Modern Organizations. Indeed, from youth to old age, modern people are involved with organizations of one sort or another for a large proportion of their waking hours. Even when we are not in the physical boundaries of an organization our lives are affected by the products and decisions of organizations. The cars we drive, the kind of education we have, the health insurance we enjoy, and so on endlessly, all are the results of the decisions and many other activities of various organizations. Anything that is so pervasive and looms so large in our lives is a matter of great importance.

One may ask what is an organization after all? Social scientists do not agree on the answers to this question.<sup>1</sup> However, one premise that most theorists do share is that organizations are formulated for the realization of specific goals. Parsons, for example, asserts that the "primary orientation to the attainment of a specific goal" is the defining characteristic of an organization and that this characteristic distinguishes it from other types of social systems.<sup>2</sup> In a similar way,

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<sup>1</sup>William G. Scott, "Organizational Theory: An Overview and Appraisal," Journal of the Academy of Management, 4:7-26, 1961.

<sup>2</sup>T. Parsons, "Suggestions for a Sociological Approach to the Theory of Organizations, I, II," Administrative Science Quarterly, 1:63-85, 225-239. The quotation is on p. 64.

Blau states that the minimum definition of formal organization is that "collective effort is explicitly organized for specific ends."<sup>3</sup> One of the outstanding characteristics of modern organizations is their large scale. A single organization may involve hundreds of thousands of people who are organized into a large number of working groups. Each member of these groups has a recognized role to play and duties or tasks to perform. However, what is divided has to be put together again. Thus supervision - directing, coordinating, and overseeing - becomes one of the most crucial issues in organizations. Moreover, while formal authority, derived from specific positions, promotes compliance with directives and discipline, it does not encourage the employees to strive for optimum performance. The problem of finding ways to broaden the scope of formal authority is a challenge to individuals in supervisory positions at all levels.<sup>4</sup> A supervisor cannot effectively play his role without exerting more influence on his subordinates than his formal authority alone permits.<sup>5</sup> Blau emphasized this point strongly and suggested that the variations of supervision provide a fruitful area for sociological research:

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<sup>3</sup>Peter Blau, and W.R. Scott, Formal Organization, San Francisco: Chandler Publishing Co., p. 223, 1962.

<sup>4</sup>To use Simon's concept, this problem would be to find ways of expanding the "zone of acceptance." See Herbert Simon, Administrative Behaviour, New York: Free Press of Glencoe, p. 12, 1965. Chester Barnard's term for the same phenomenon was "zone of indifference." The Function of the Executive, Cambridge, Mass.: Harvard University Press, pp. 167-69, 1938.

<sup>5</sup>For a good discussion of the relationship between authority, power, and influence, see Robert L. Peabody, Organizational Authority, New York: Atherton Press, pp. 5-6, 1964.

The "style of leadership" of a supervisor is of great importance, since it governs the amount of influence he has over subordinates in addition to the power that derives directly from his formal status in the organizational hierarchy. Indeed, these variations in effective authority are what make the empirical study of supervision an interesting and fruitful task for the sociologist.<sup>6</sup>

The dominance of organizations in the work sphere is very clear. Virtually more than 85 per cent of our labour force is employed by various organizations. While personnel at all levels of an organization are necessary and important, first-line supervisors occupy a crucial position in the pyramidal structure. They are the "frontier" of an organization. They serve as the link between the higher management and the operatives who carry out the production or service work. Since they have direct contact with the rank-and-file workers, their ways of exercising authority are obviously consequential. Thus, there has been a great deal of research of this level of supervision in formal organizations focusing on the effect of supervisory styles upon the performance of subordinates.<sup>7</sup> However, comparatively little research

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<sup>6</sup>Ibid, p.141.

<sup>7</sup>See M. Argyle, G. Gardner, and F. Cioffi, "Supervisory Methods related to Productivity, Absenteeism, and Labour Turnover," Human Relations, 11:23-40, 1958; A.L. Comery, J.F. Pfiffner, and W.S. High, Factors Influencing Organizational Effectiveness, UCLA, Final Technical Report, The Office of Naval Research, 1954; E.A. Fleishman and D.A. Peters, "Leadership Attitudes, and Managerial Success," Personnel Psychology, 15:127-143, 1962; D. Katz, N. Maccoby, N.C. Morse, Productivity, Supervision, and Morale in an Office Situation. Detroit: The Darel Press, 1950; D. Katz, N. Maccoby, G. Gurin, and L.G. Floor, Productivity, Supervision, and Morale among Railroad Workers. Franklin Dekleine Co., 1951; A. Korman, "'Consideration,' 'Initiating Structure,' and Organizational Criteria - a

effort has been directed to the question of why there are variations of supervision. The lack of interest in this issue is partially due to the fact that people, especially the people in industries, are more concerned with consequences of supervision: what style of supervision can motivate workers more, so that productivity can be maintained or increased. Another reason which partially accounts for this gap in research is that theorists and practitioners have assumed for a long time that a supervisory style is by and large an individual choice which is more or less determined by a person's personality.<sup>8</sup> Consequently, attention has been directed to the study of personality traits attempting to establish a relationship between personality and leadership. However, various literature reviews of studies which used a trait approach have failed to find any consistent patterns of personality

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Review," Personnel Psychology, 19:334-361, 1966; G. Strauss, "Organizational Behaviour and Personnel Relations," in W.L. Ginsberg, H.S. Parnes, E.R. Livernask, and G. Strauss, A Review of Industrial Relations Research, Vol. I, pp. 145-206, 1970; K.E. Thurley and A.C. Hamblin, The Supervisor and His Job, HMSO, 1963. Robert J. House, "A Partial Theory of Leadership Effectiveness," Administrative Science Quarterly, 16:3:321-38, 1971; Robert J. House and Garry Dessler, "The Path-goal Theory of Leadership: Some post hoc and a priori Tests," paper presented at the second Leadership Symposium: Contingency Approach to Leadership, Southern Illinois University, Carbondale, Illinois, Mimeograph, 1973. Harish C. Jain, "Supervisory Communication and Performance in Urban Hospitals," Journal of Communication, 23:1:103-117, March, 1973.

<sup>8</sup>See, for examples, F.E. Fiedler, A Theory of Leadership Effectiveness, New York: McGraw-Hill, 1967; H.A. Poe and A. Berg, "Psychological Test Performance of Steel Industry Production Supervisors," Journal of Applied Psychology, 36:234-237, 1952.



traits to characterize leadership style.<sup>9</sup> Another study, Etzioni's compliance model, is mainly a classification of organizations based on the extent of commitment of the participants.<sup>10</sup> This model indicates, in general, what type of authority relationship characterizes what type of organization. For example, coercion is prevalent in certain organizations. However, Etzioni did not pay attention to the variations which may occur at group level within the general type of authority relationship in an organization. Woodward's work<sup>11</sup> is considered as a major breakthrough in this area, which claimed that technology is one of the important influencing factors on organizational behaviour. While her classification of technology is adequate for interorganizational comparison, it is too gross for the analysis at the group level. More recently, Hill and Hughes have found that leader behaviour varies with the type of task.<sup>12</sup> However, their study dealt with only one variable.

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<sup>9</sup>R.M. Stogdill, "Personal Factors Associated with Leadership," Journal of Psychology, 25:35-71, 1948; R.D. Mann, "A Review of the Relationships between Personality and Performance in Small Groups," Psychology Bulletin, 56:241-270, 1959; C.A. Gibb, "Leadership," in G. Lindzey and E. Aronson. eds., The Handbook of Social Psychology, Vol. 4, pp. 205-282, 1969.

<sup>10</sup>Amitai Etzioni, A Comparative Analysis of Complex Organizations, New York: The Free Press, 1961.

<sup>11</sup>Joan Woodward, Industrial Organizations: Theory and Practice. London: Oxford University Press, 1965.

<sup>12</sup>Walter A. Hill and David Hughes, "Variations in Leader Behaviour as a Function of Task Type," Organizational Behaviour and Human Performance, 11:83-96, 1974; also Walter A. Hill, "Leadership Style: Rigid or Flexible?" Organizational Behaviour and Human Performance, 9:35-47, 1973.

A more elaborate effort to explore the dynamic of the influencing factors of variations of supervisory behaviour is needed.

As a more elaborated review of the literature will be undertaken in the next chapter, it suffices to say that, despite the existence of a vast amount of literature, we know little about the reasons for supervisory variations. Attempting to bridge the gap in our knowledge of organizational behaviour, the present study is concerned with investigating the factors which influence supervisory styles of first-line supervisors in industry.

### The Problem

The present study is concerned with investigating the factors which influence supervisory style. The supervisor-worker relationship is conceptualized as a goal-oriented role system which operates in an organizational environment with certain structural, technological, and background characteristics. With the guidance of the concept of role system four dimensions which are empirically identified but consistent with important role elements are selected for investigation. A longer discussion of this perspective will be presented in the next chapter. The rationale is briefly outlined below.

The dimensions of supervisory style which research has shown to be important are the supervisor's orientation to production, to the welfare of his workers, to closeness of supervision, and to the way he allocates the time at his disposal. The first three of these empirical dimensions may be seen as aspects of certain conditions which are assumed

to be essential for the functioning of any role system. Thus, production orientation relates to a system requirement for some degree of achievement of designated goals; worker orientation to the maintenance of appropriate emotional relationships between role incumbents; and closeness to the requirement for some means of control to ensure conformity to role expectations. Time allocation may be seen as related to a further essential condition, integration, that is achieved by the priorities established for the system requirements discussed above. Viewed in this way, the research-identified dimensions of supervisory behaviour need not be regarded solely as the arbitrary choices of investigators but as relating to certain basic assumptions concerning role systems. In this research, it is also assumed that in spite of institutionalized priorities, there would still be room for variations among supervisors concerning the relative emphasis they give to realizing one condition or another or the manner in which the condition is realized. Thus, supervisors could vary in emphasis they give to production, their concern for the welfare of their subordinates, and to the way they exercise their authority. Moreover, such variations in emphasis or orientation could be expressed in the way a supervisor uses his time to perform these variable responsibilities of his role.

It is further argued that, while the role system allows various ways for the role-playing of a supervisor, the choice among the variations is restricted by some environmental factors, in addition to his own background characteristics.<sup>13</sup> It is hypothesized that supervisory style

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<sup>13</sup>W.J. Reddin's 3-D theory holds that the effectiveness of any

is the product of the interaction of social structure, technology, and background characteristics. In other words, the purpose of the present study is to explore the extent to which some of the structural, technological, and background variables, which will be specified in Chapter II, influence the first-line supervisors' supervisory style in industry. The rationale for this endeavour is that a member of an organization is not operating in a vacuum. While he has his own characteristics due to socialization, the characteristics of the organization in which he finds himself must have a certain amount of effect on his behaviour. In this case, we are concerned with the way a first-line supervisor exercises his authority on his subordinates.

#### The Organization of the Dissertation

The report of this study consists of six chapters. In this chapter, the problem which concerns the study is described. Chapter II provides a statement of the theoretical framework which guides this study. The dependent and the independent variables are defined; the relationships between the two sets of variables are delineated and the hypotheses derived.

Also in Chapter II, relevant literature pertaining to supervisory styles and the factors which affect the adoption of the styles are

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supervisory behaviour depends on the situation in which the supervision is performed. This perspective is similar to the one used in this study. He breaks the situation into five elements called technology, subordinates, coworkers, superiors, and organization. While the 3-D theory has taken coworkers and subordinates into consideration, it does not consider the characteristics of the supervisor as situational elements. See W.J. Reddin, Managerial Effectiveness, New York: McGraw-Hill, 1970.

reviewed and empirical findings about supervisory styles are cited.

Chapter III provides a description of the procedures and the methods employed in carrying out the study and discusses the instrument used in measuring supervisory style.

The findings resulting from the analysis of the data are reported in Chapters IV and V. First the findings from an analysis which treats the structural, technological, and background variables separately are presented in Chapter IV. To determine the effect of these variables, they are correlated with each of the four dimensions. A discussion of the findings of the relationships between each independent variable and the dimensions of supervisory style is presented at the end of each section.

Chapter V reports the findings of an analysis of the amount of explained variances in the dimensions of supervisory style which can be accounted for by all the independent variables taken together. In addition, variations of supervisory style were investigated in terms of the interaction between environmental variables and such differences among supervisors as age and experience. Interpretations and discussion of the findings of this analysis are presented in each section.

Finally, in Chapter VI, the findings of the study are summarized. Their implications are discussed. Some suggestions are made for further research.

## Chapter II

### THEORETICAL FRAMEWORK AND A REVIEW OF THE LITERATURE

#### Introduction

It is a commonly known fact that there are different supervisory styles. Many researchers have sought to conceptualize the major ones and tried to relate variations in supervisory styles to other aspects of the work situation, such as productivity, worker satisfaction, absenteeism and turnover. Before reviewing the main results of research, however, it is necessary to discuss approaches to the study of supervisory style.

As any other kinds of behaviour, supervisory style can be studied from the perspective of the supervisor (actor), from that of the supervised, or of a superior who in turn supervises the supervisors (alters), or from the viewpoint of an observer. All these perspectives can, of course, be undertaken in a single research project. However, usually a researcher is limited by the resources (e.g., time and finance) available to him, so that he may not be able to do what he wishes to do. For example, a longitudinal observational approach may be preferable, as adopted by Thurley and Hamblin and Wirdenius.<sup>1</sup> But, in most cases it is difficult to obtain long term commitment from sponsoring organizations.

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<sup>1</sup>See K.E. Thurley and A.C. Hamblin, The Supervisor and His Job. London: Her Majesty's Stationery Office, 1963; Hans Wirdenius, Supervisor at Work. Stockholm: The Swedish Council for Personnel Administration, 1958.

Thus, most studies adopt the first two approaches, probing the actor's or alter's perception of supervisory style by employing personal interviewing or questionnaires. In this study, it was originally planned to use both self and worker ratings. However, as it was not possible, for various reasons, to obtain worker perception, the data collected are based on the supervisors' perceptions. No generalizations will be made beyond this limitation.

It was observed above that many researchers have tried to conceptualize different supervisory styles. In the literature, supervisors are categorized as employee-centered or production-centered,<sup>2</sup> people-oriented or production-oriented,<sup>3</sup> democratic or laissez-faire or autocratic,<sup>4</sup> relationship-oriented or task-oriented,<sup>5</sup> emphasizing consideration or initiating structure.<sup>6</sup> Most of these studies have concentrated

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<sup>2</sup>D. Kahn and R.L. Katz, "Leadership Practices in Relationship to Productivity and Morale," in D. Cartwright and A. Zander, eds., Group Dynamics, New York: Harper and Row, pp. 612-627, 1953.

<sup>3</sup>R. Likert, New Patterns of Management, New York: McGraw-Hill, pp.6-8, 1961.

<sup>4</sup>R. White and R. Lippitt, "Leader Behaviour and Member Reaction in Three Social Climates," in Cartwright and Zander, op. cit., pp.527-553.

<sup>5</sup>S.M. Nealey and M.R.B. Blood, Leadership Performance of Nursing Supervisors at Two Organizational Levels, Urbana, Ill., Group Effectiveness Research Laboratory, University of Illinois, 1966, cited by F.E. Fiedler, A Theory of Leadership Effectiveness, New York: McGraw-Hill, 1967. Also, W.J. Reddin, Managerial Effectiveness: New York: McGraw-Hill, 1970.

<sup>6</sup>E.A. Fleishman, E.F. Harris and H.E. Burt, Leadership and Supervision, Ohio State Business Education Research Monograph, 1955.

on establishing the effects or consequences of the differences of styles of supervision rather than on the factors which influence the variations of supervision. As we have discussed in Chapter I, the concentration of research interest on one side of the problem of supervision, and the lack of it on the other, is basically attributable to its importance to the attainment of organization goals. For industrial organizations, the most important goals are high level productivity and worker satisfaction, low level of absenteeism and turnover. It is therefore important to examine the significance of different supervisory styles by relating them to the effect of criteria mentioned above, using the findings reported in the literature.

First, we shall be concerned with productivity. Many studies carried out in organizational settings indicate that people-oriented supervision increases productivity. For example, studies in an insurance company and among railroad gangs conducted by the Survey Research Center of Michigan University found that supervisors with more productive groups did not exercise close supervision. The workers were more autonomous, receiving less-detailed instructions with fewer instances of being checked on than was the case among less productive groups. Further, the supervisors with the more productive groups were employee-centered, exhibiting a concern for the feelings and opinions of their subordinates.<sup>7</sup> An experimental study conducted in a telephone company in Sweden shows that workers under informal supervision achieved a higher level of production

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<sup>7</sup>Kahn and Katz, op. cit.



than those working under more rigid supervision.<sup>8</sup> The research by Argyle, Gardner, and Cioffi of 90 work groups found that the combination of general, democratic, and non-punitive supervision was positively related to productivity.<sup>9</sup>

However, the findings about the relationship between supervision and productivity are not consistent. While the above studies found that those supervisors who were considerate of their subordinates had the more productive groups, others pointed out that authoritarian style of supervision could also increase productivity, although it reduced worker satisfaction considerably. For example, Likert has presented some Michigan data which show that productivity increases with supervisor's pressure for more output.<sup>10</sup> An experimental study conducted by Morse and Reimer found that productivity in both "autonomous program" (in which the clerical groups were delegated the authority to decide work methods, recess periods and other personnel matters) and "hierarchically controlled program" (in which employees were tightly controlled by higher levels of management and staff officials) increased, with a somewhat greater increase in the

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<sup>8</sup>Gunnar Westerlund, Group Leadership, Stockholm: Nordisk Rotogravyr, 1952.

<sup>9</sup>M. Argyle, G. Gardner, and F. Cioffi, "Supervisory Methods Related to Productivity, Absenteeism, and Labour Turnover," Human Relations, 11:23-40, 1958.

<sup>10</sup>R. Likert, "Developing Patterns in Management," American Management Association, Strengthening Management for the New Technology, New York, 1955. This article was reviewed by R. Dubin, "Supervision and Productivity: Empirical Findings and Theoretical Consideration," in Dubin et al., Leadership and Productivity, San Francisco: Chandler, p. 27, 1965.

hierarchically controlled departments.<sup>11</sup> Finally, in his study of two governmental employee agencies, Blau found that work-group productivity was not related to authoritarianism. Only small differences were found in the two agencies, and they were in opposite directions; i.e., productivity of work-groups under authoritarian supervision increased rather than decreased as predicted.<sup>12</sup>

The findings of various studies on the association between supervision and worker satisfaction are more consistent than those on the relationship between supervision and productivity. For example, a study of workers engaged in the manufacture of heavy equipment found that workers working under employee-centered supervision experienced more satisfaction.<sup>13</sup> Morse and Reimer also reported that the employees working under the autonomy program liked their work more, and indicated greater satisfaction with supervisors.<sup>14</sup> Finally, Blau found that non-authoritarian supervision appeared to increase worker satisfaction.<sup>15</sup> Many theorists with a human relations perspective assume that the structure

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<sup>11</sup>Nancy C. Morse and E. Reimer, "The Experimental Change of a Major Original Variable," Journal of Abnormal and Social Psychology, 52:120-129, 1956.

<sup>12</sup>Peter M. Blau and W.R. Scott, Formal Organizations, San Francisco: Chandler, p. 153, 1962.

<sup>13</sup>R.L. Kahn, "The Prediction of Productivity," Journal of Social Issues, 12:49-49, 1956.

<sup>14</sup>Morse and Reimer, op. cit.

<sup>15</sup>Blau and Scott, op. cit., p. 151.

of organization which increases employee satisfaction concomitantly increases their productivity. However, this assumption has not stood well in empirical findings. An extensive survey of research on morale and productivity was reported as early as 1955 by Brayfield and Crockett. They noted that "there is little evidence in the available literature that employee attitudes of the type usually measured in morale surveys bear any simple - or, for that matter, appreciable - relationship to performance on the job."<sup>16</sup>

Kahn, one of the principal investigators of the Michigan group, concluded in the survey of Michigan studies of supervisors and workers as follows: "None of the major indices of satisfaction (job, supervision, company, etc.) proved either to relate to productivity or to mediate significantly between productivity and such independent variables as role differentiation, delegation, or employee orientation."<sup>17</sup> More recently, Vroom analyzed data from 20 studies, finding that the median correlation between satisfaction and performance was .14. He concluded that "there is no simple relationship between job satisfaction and job ...and the median correlation of .14 has little theoretical or practical importance."<sup>18</sup>

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<sup>16</sup>Arthur H. Brayfield and James H. Crockett, "Employee Attitudes and Employee Performance," Psychological Bulletin, 52, p. 408. 1955.

<sup>17</sup>Kahn and Katz, op. cit.

<sup>18</sup>Victor H. Vroom, Work and Motivation, New York: John Wiley and Sons, p. 408, 1965.

The inference from the above evidence, that a direct relationship between satisfaction and worker effort, is not confirmed. However, Tausky has pointed out this is only one aspect of satisfaction-organizational effectiveness.<sup>19</sup> He further suggested that it is important to distinguish (a) the motivation to expend more or less effort on the job and (b) the motivation to stay within the system or leave it. The reason for distinguishing the two kinds of motivation of course is due to the consideration that both absenteeism and turnover<sup>20</sup> reduce organizational effectiveness. If job satisfaction motivates workers to stay within the system, the recruiting, training, and administrative costs caused by absenteeism and turnover would be reduced, if not minimized. Thus the indirect or long range consequences of satisfaction for organizational effectiveness may be sizable. Is there any empirical evidence to support the existence of a relationship between satisfaction and absenteeism and turnover? It appears to be so, although this relationship may be moderated by factors such as availability of alternative employment or the severity of punishment for frequent absence.

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<sup>19</sup>Curt Tausky, Work Organizations: Major Theoretical Perspectives, Itasca, Ill.: Peacock, p. 184, 1970.

<sup>20</sup>Jones suggests that absenteeism and turnover are two different ways that workers adopt to reduce their dissatisfaction. When they are dissatisfied with aspects of their jobs, they handle the situation by staying off work for a day or so, but when the dissatisfaction concerns company policy, authority or rewards, they quit. For details, see Frank E. Jones, Technology, Stress and Stress Reduction in an Electronic Factory, Mimeograph, p. 55, June, 1969.

Brayfield and Crockett's survey of studies found that satisfaction, although measured in different ways by different researchers, was inversely related to turnover and absenteeism.<sup>21</sup> Likert examined the evidence from the Michigan studies, which further support the relationship between satisfaction, absenteeism, and turnover.<sup>22</sup> Various studies, reviewed by Vroom, on absence, turnover, and satisfaction showed that quit rates, among both white-collar and manual workers, are consistently related to satisfaction. Absence was also found to relate to satisfaction, but not as consistently from study to study as did turnover.<sup>23</sup> Finally, Gibson's recent detailed survey of studies on absenteeism found that it was inversely related to satisfaction.<sup>24</sup>

The patterns of research findings indicate, then, two important points: (a) The relationship between styles of supervision and productivity is not conclusive. Both employee-oriented and production-oriented supervisory styles may lead to the increase of productivity. (b) While worker attitudes toward supervision are not translated in a direct manner into work effort, they do have long-run consequences for organizational effectiveness through influences on the decision to remain

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<sup>21</sup>Brayfield and Crockett, op. cit., pp. 405-409.

<sup>22</sup>R. Likert, New Patterns of Management, New York: McGraw-Hill, pp. 15-20; 34-48, 1961.

<sup>23</sup>Vroom, op. cit., pp. 175-180.

<sup>24</sup>R. Oliver Gibson, "Toward a Conceptualization of Absence Behaviour of Personnel in Organizations," Administrative Science Quarterly, 11:107-133, 1966.

in, or withdraw from, the organization. Both conclusions show the importance of supervision in relation to organizational effectiveness and justify the research effort directed to supervisory behaviour. Furthermore, the former conclusion raises the question whether different work settings require different supervisory styles. Or, to put the question in a different way: why does a supervisor exercise his authority in a certain way in a given organizational environment? As already stated, the present study is an attempt to answer this question.

To do so, we have to identify the important dimensions of supervisory style, and the factors that influence a supervisor's decision to adopt a certain style. To achieve this objective in a sociological perspective, it may be useful to regard a superior-subordinate relationship as a role system which operates within an organization. While the role system allows the role playing of a supervisor to take various forms, the choice among the variations is restricted, if not determined, by some environmental factors, such as the structure of the organization, the technology employed, and the background characteristics (e.g., age, education, and length of service) of the incumbents of the roles. It is reasoned that supervisory behaviour is the product of the interaction of these factors. In the following, we shall, first, consider the dimensions of the superior-subordinate relationship. Secondly, we shall argue why structural, technological, and background factors influence supervisory behaviour and specify the variables for investigation. Finally, we shall specify the hypotheses to be tested.

## DIMENSIONS OF SUPERVISION

- dependent variables -

In arriving at a decision regarding the choice of dimensions of supervisory style, there are two possible avenues. First, a researcher can use empirically identified dimensions: he can either try, like Thurley and Hamblin,<sup>25</sup> to identify the dimensions by longitudinal observation of supervisory behaviour, or, he may, like Argyle and his associates,<sup>26</sup> select from the dimensions reported in the literature. The second approach is to derive them theoretically: Etzioni's compliance theory<sup>27</sup> is a pertinent example. In this study, we shall combine these approaches. That is, we shall select, but with a theoretical rationale, those empirically discovered dimensions which we consider to have the greatest explanatory value in relation to the consequences of supervisory style.

In this study, the supervisor-worker relationship is conceptualized as a role system. Four dimensions of the role system will be investigated: production orientation, worker orientation, closeness, and time allocation. Although these dimensions are selected from the

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<sup>25</sup>Thurley and Hamblin, op. cit.

<sup>26</sup>Argyle et al., op. cit.

<sup>27</sup>A. Etzioni, A Comparative Analysis of Complex Organizations, New York: The Free Press, 1961.

empirically discovered ones,<sup>28</sup> the selection is not arbitrary; rather they are selected because they are consistent with important role elements.

Although there is no unified role theory, the literature reveals agreement among several writers that roles or role systems vary in relation to certain dimensions. For example, Benne and Sheats,<sup>29</sup> by analyzing their data of group development, identified the basic categories of roles: (1) group task roles: these roles are related to the task which the group is deciding to undertake or has undertaken. Their purpose is to facilitate and coordinate group effort in the selection and definition of a common problem and in the solution of that problem. Initiator, information seeker/giver, coordinator, and orientor are some of the roles in this category. (2) Group building and maintenance roles: these roles are to alter or maintain the group way of working, to strengthen, regulate, and perpetuate the group as a group. Encourager, harmonizer, standard setter are some roles in this category.

Similarly, Bales and Parsons argue that there are two basic

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<sup>28</sup>Argyle et al, "The Measurement of Supervisory Methods," Human Relations, 10:295-313, 1957. In this article, Argyle listed seven empirically discovered dimensions of supervision: (1) General as opposed to close supervision. (2) Pressure for production. (3) Time spent on supervision and planning as opposed to time spent doing similar work to that of the operators. (4) Power or authority of foremen, whether formal or informal (influence with superiors on behalf of subordinates). (5) Employee-centered behaviour as opposed to production-centered behaviour. (6) Democratic as opposed to authoritarian supervision. (8) Discipline - obtained by persuasive as opposed to punitive methods.

<sup>29</sup>Kenneth D. Benne and Paul Sheats, "Functional Roles of Group Members," Journal of Social Issues, 4:41-49, 1948.



problem areas in role differentiation: the instrumental-adaptive task and the expressive-integrative social emotional area.<sup>30</sup> Roughly, the former parallels Benne's group task roles; the latter, group maintenance roles. While these are acts or roles that members of discussion laboratory groups may perform, they can also be viewed as functions that the leader (supervisor) of a work group has to carry out; i.e., he has instrumental and integrative responsibilities. Thus, given the assumption that roles relate to objectives, roles will vary in relation to task requirements which are directly relevant to achieving those objectives. For example, in an industrial organization, while a foreman is expected to direct his men to achieve a production target, he is also expected to be emotionally supportive to his subordinates. It follows that foremen may vary in the relative emphasis they give to their two types of responsibilities.

However, variations may occur at different levels. They may occur between roles. For example, compared to workers, supervisors may be expected to be more concerned about productivity. Variations may also occur within roles, i.e., among role incumbents. In this study, we are interested in the latter kind of variation. In a production organization, productivity is by far the primary goal. However, work is done by, or at least through, the workers. A first-line supervisor is therefore constantly facing the tension between exploiting workers' energy and

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<sup>30</sup> Robert F. Bales, "The Equilibrium Problem in Small Groups," in Talcott Parsons, Robert Bales, and Edward A. Shils, Working Papers in the Theory of Action, Glencoe, Ill.: The Free Press, pp. 111-161, 1953.

caring for their needs. Some supervisors may put more or less emphasis on production. Others may put more or less emphasis on their subordinates. This, then, leads us to the consideration of another dimension of role relationship, that is, the variation of emotional expression between role incumbents.

Assuming emotional expression is a basic aspect of human behaviour, it is argued that expectations or prescriptions concerning emotional expression between role incumbents provide an important dimension along which role incumbents will vary. Certainly, it can be said that role systems differ in the extent to which role incumbents may be emotionally involved - the extent to which they may like or dislike one another, the extent to which each should be concerned about the other, the extent to which the relationship is "personal." Where authority is unequally distributed between roles, as in military organizations, it may be the case, that the superior is expected to be concerned for the welfare of his subordinates. Again, role incumbents, including the supervisors in this study, may be expected to vary in the expression of this concern. In this research, this concern is investigated by questions which focus on the supervisor's orientation to his subordinates.

From the above discussion, it is clear that task performance and emotional expression are important dimensions of role systems. In this study, these two dimensions are labelled as production orientation and worker orientation respectively. Operationally, they are defined as follows:

Production orientation: A production-oriented supervisor is

described as stressing production and technical aspects of his role, and as regarding workers primarily as producers.<sup>31</sup>

In one of the two major leadership styles that emerged from the Ohio State studies, a dimension quite similar to this one may be discerned. The term used for this style is "initiating structure." It was defined by Fleishman as "...the extent to which an individual (supervisor) is likely to define and structure his role and those of his subordinates toward goal attainment."<sup>32</sup>

Worker orientation: A supervisor who is described as worker-oriented regards it as being of prime importance to keep his workers happy. He takes a personal interest in them as much as possible.<sup>33</sup>

Similarly, this dimension corresponds with another major aspect of leadership style that emerged from the Ohio studies: Consideration. It is defined as "...the extent to which an individual (supervisor) is likely to have job relationships characterized by mutual trust, respect for subordinates' ideas, and consideration of their feelings."<sup>34</sup>

In a more elaborated version of the definition of consideration, Fleishman explained that it does not mean that this dimension reflects

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<sup>31</sup>Kahn and Katz, op. cit.

<sup>32</sup>E.A. Fleishman and D.A. Peters, "Leadership Attitudes and Managerial Success," Personnel Psychology, 15:127-143, 1962.

<sup>33</sup>Kahn and Katz, op. cit.

<sup>34</sup>Fleishman and Peters, op. cit.

a superficial "pat-on-the-back," "first-name-calling" kind of human relations behaviour. This appears to emphasize a deeper concern for group members' needs and includes such behaviour as allowing subordinates more participation in decision making and encouraging more two-way communication.<sup>35</sup>

In addition to role task and emotional commitment, authority is another important variable element in role systems. Where authority is unequally distributed in role systems, so that incumbents of one role are required, among other things, to enforce compliance by the incumbent of other roles to role expectations, some range of variation may be expected among those who exercise authority. Compliance may be achieved by various means, among them by explicit checking of the actions of subordinates. As with all role performances, variations may be expected, and in this research, it was expected that supervisors would vary in the extent, or closeness, with which they checked the actions of their subordinates. Following Katz and his associates, closeness is operationally defined as "the degree to which the supervisor checks up on his employees frequently, gives them detailed and frequent instructions, and in general limits the employee's freedom to do their work in their own way."<sup>36</sup>

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<sup>35</sup>E.A. Fleishman and E.F. Harris, "Patterns of Leadership Behaviour, Related to Employee Grievance and Turnover," Personnel Psychology, 15:43-56, 1962.

<sup>36</sup>D. Katz, N. Maccoby, and N.C. Morse, Productivity, Supervision and Morale in an Office Situation, Detroit: The Darel Press, 1950.

Finally, all roles can be seen to be internally differentiated. Indeed, the preceding discussion calls attention to the differentiation of role obligations in terms of substantive tasks and responsibilities in relation to authority. It follows then, that time and energy can be variously distributed in relation to meeting these differentiated role responsibilities, and while the distribution may be fixed in some degree, there may also be variations among role incumbents. In industrial situations, the substantive tasks of a role possessing authority may vary. One part of the incumbent's task focuses on activities such as planning, obtaining resources, i.e., coordination. The other is concerned with activities such as checking, overseeing, supervising in the sense of ensuring that the workers are busy at work and that they are doing their job in the right manner. In this research, data regarding such variations were obtained by asking questions about the way a supervisor allocated his time among his various responsibilities. More specifically, this dimension is defined as the proportions of working time which a supervisor spends on the shop floor and in the office.

Both of these functions - office work and shop floor checking - are legitimate parts of what is understood by the term "supervision." In three early studies by the Survey Research Center at the University of Michigan, time spent on supervision was found to be related to productivity.<sup>37</sup> They found that high-producing supervisors spent more

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<sup>37</sup>Katz, Maccoby and Morse, op. cit.; D. Katz, N. Maccoby and G. Gurin, Productivity, Supervision and Morale among the Railroad Workers, Ann Arbor: Institute for Social Research, University of Michigan, 1951;

time on supervisory functions than on doing the same general type of work as did their experienced workers. However, in these findings, there is always a persistent question, which variable was dependent, supervision or productivity?<sup>38</sup> It is possible that the men work harder when they are supervised in certain ways so that the supervisor does not have to spend much time on the shop floor watching and checking. It is also conceivable that the supervisor supervises differently when his men work harder. A third possibility, and the one which is the major concern of this study is that there are independent factors, such as technological factors, which produce a particular style of supervision.

Summary: In a sociological perspective, a superior-subordinate relationship is viewed as a role system. This role system allows variations along four dimensions which are production orientation, worker orientation, closeness, and time allocation. Although role theory, at present, does not offer a set of dimensions which may be regarded as the most critical set of role variables, we hold that the emphasis given by various writers to role task, to emotional commitment, and to the factor of authority cannot be lightly ignored. Moreover, the persistent focus in sociological literature on authority and emotional expression as

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Katz and Kahn, The Caterpillar Tractor Company Study, Vols. V & VI, University of Michigan, (Mimeographed), 1951, cited by Argyle et al., op. cit., 1965.

<sup>38</sup>R. Dubin, "Supervision and Productivity: Empirical Findings and Theoretical Considerations," and George C. Homans, "Effort, Supervision and Productivity," in R. Dubin, G.C. Homans, F.C. Mann, and D.C. Miller, op. cit., 1965.

elements of roles or role relationship provide strong support for the assumption that these are critical dimensions for investigation. Furthermore, empirical evidence as reviewed show that variations in the four dimensions do explain worker performance.

These four dimensions can, in turn, be summarized into one major dimension for which they can serve as specific indicators. The terms "bureaucratic style" and "humanistic style" will be used as summarizing terms for two kinds of supervisory styles. In terms of the four dimensions specified earlier, we may say that a supervisor is practising a bureaucratic style of supervision, if he is more production-oriented, less worker-oriented, supervises more closely, and spends more time on the shop floor. On the other hand, we may say a supervisor is practising a humanistic style of supervision, when he is less production-oriented, more worker-oriented, supervises less closely, and spends more time on office work.

Although there can be numerous combinations of the four dimensions of supervision, we shall concentrate, for the purpose of simplicity, on the two extremes. Finally, it should be pointed out that the terms - bureaucratic style and humanistic style - are used here just as two summarizing labels. They are not intended to carry any value connotations.

Briefly, in this section, we have discussed the superior-subordinate relationship as a role system, arguing that the role system allows variable ways for the supervisor to play his role. We shall now turn to discussing the proposition that the choice of supervisory styles is influenced by the environment of the role system.

## STRUCTURAL, TECHNOLOGICAL AND BACKGROUND FACTORS

### - Independent variables -

Although most previous studies of supervisor worker relations have concentrated on establishing the effect of the different styles of supervision, some have studied the factors which influence a supervisor's choice among different styles. Among these, some have assumed explicitly or implicitly that supervisory styles are related to personality.<sup>39</sup> For example, Poe and Berg hypothesized that there are systematic differences between high-producing and low-producing foremen in terms of personality traits.<sup>40</sup> However, it was found that personality traits were randomly distributed between the two categories of supervisors. In other words, the study indicates that personality plays little part in accounting for the differences of supervisory styles in relationship to the level of productivity.

Other researchers, such as Crozier and Mann, also found that the selection of supervisory styles is not significantly influenced by personality factors. Crozier indicated that "the type of work done by the group they (supervisors) lead has noticeable influence, and the organization to which they belong has decisive influence."<sup>41</sup>

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<sup>39</sup>See, for examples, Fiedler, op. cit., and H.A. Poe and A. Berg, "Psychological Test Performance of Steel Industry Production Supervisors," Journal of Applied Psychology, 36:234-237, 1952.

<sup>40</sup>Poe and Berg, op. cit.

<sup>41</sup>Michel Crozier, The World of the Office Worker, Chicago: The University of Chicago Press, p. 126, 1971.



In a somewhat similar but more general way, F. Mann holds:

...leadership in the formal organization is a highly relative process with different combinations of supervisory-leadership skills and practices being required at different levels of supervision in the same organization at different times in the life of an organization.<sup>42</sup>

The literature cited above does not entirely rule out personality as one of the factors which influence supervisory styles, but it suggests strongly that more attention should be given to the organizational environment in which the supervisor works. Thus, this study does not provide evidence for or against the influence of personality differences. Rather, it is an attempt to clarify the influence of the important components of the organizational environment.

In the first section of this chapter, we have argued that the supervisor-worker relationship may be perceived as a role system. Certainly, it is consistent with a sociological perspective to further conceive of a role system operating in an environment. For role systems which are in effect sub-systems of organizations, the organizational structure is an important environmental component. In addition, it has been established by many writers, notably J. Woodward<sup>43</sup> and C. Perrow,<sup>44</sup>

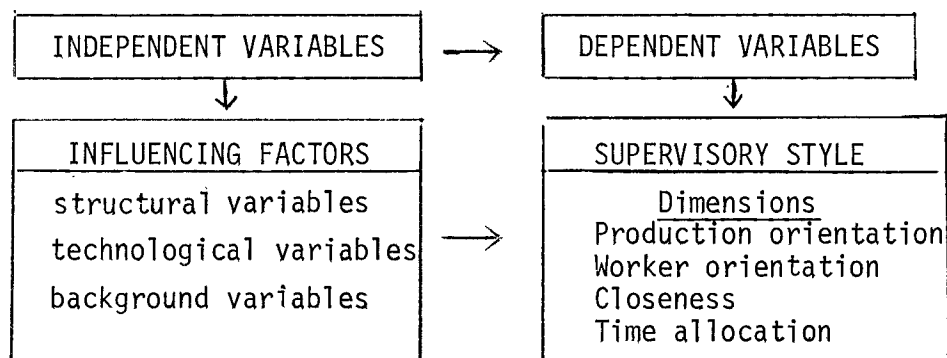
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<sup>42</sup>F.C. Mann, "Toward an Understanding of the Leadership Role in Formal Organization," in R. Dubin, G.C. Homans, F.C. Mann and D.C. Miller, op. cit., p. 103.

<sup>43</sup>Joan Woodward, Industrial Organization: Theory and Practice. London: Oxford University Press, 1965.

<sup>44</sup>Charles Perrow, "A Framework for the Comparative Analysis of Organizations," American Sociological Review, 32:2:194-208, 1967.

that technology is another important component of organizational environments, a point to which we shall return later in this chapter. In addition, the supervisor's background characteristics (e.g., age, sex education, etc.) form another important component of the environment, for these characteristics are socially interpreted in social interaction. (It is recognized that the workers' background characteristics may also have some impact on supervisory behaviour. However, it is beyond the scope of this research.) Conceivably, all these components of the environment in which the role system operates, influence the behaviour of the incumbents of the roles. Taking all these factors into consideration, it is reasonable to argue that while there is room for variation in supervisory behaviour along the dimensions specified, the choice among various ways for a supervisor to play his role is constrained by the three important components of the organizational environment. Thus the general proposition which will be investigated in this research is that supervisory style is the product of three factors: the social structure and technology of the work situation, and the background characteristics of the supervisors. The model presented below displays the



relationship between the influencing factors and the style of supervision. In the following, we shall first discuss the three factors in general; then specify the selected variables for investigation.

#### STRUCTURAL AND TECHNOLOGICAL CONSTRAINTS:

An organization imposes two sets of constraints upon its members arising, on the one hand, from the social system, both formal and informal,<sup>45</sup> and, on the other hand, from the technological system. Although Weber's ideal-type of bureaucracy<sup>46</sup> has drawn a great deal of criticism,<sup>47</sup> it does point out the most salient characteristics of modern organizations. He claims that in any complex organization there is: (1) clear cut division of labour, which makes a high degree of specialization possible; (2) a hierarchy of authority with each lower office under the control and

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<sup>45</sup>The terms of "formal" and "informal" organization are derived from the Western Electric studies. See F.J. Roethlisberger and W.J. Dickson, Management and the Worker, Cambridge, Mass.: Harvard University Press, pp. 558-559, 1939. For other discussions of formal and informal organizations see R. Dubin, Human Relations in Administration, New York: Prentice-Hall, pp. 56-58, 1951; P. Blau and W.R. Scott, Formal Organization, San Francisco: Chandler, pp. 6-8; 89-100, 1962.

<sup>46</sup>Max Weber, The Theory of Social and Economic Organization, A.M. Henderson and Talcott Parsons, trans., Glencoe, Ill.: Free Press, 1947; and in H.H. Gerth and C. Wright Mills, trans. & eds., From Max Weber: Essays in Sociology, New York: Oxford University Press, pp. 196-204, 1946.

<sup>47</sup>R. Merton, Social Theory and Social Structure, 2nd ed., Glencoe, Ill.: Free Press, pp. 50-54, 1957; P. Selznick, "Foundation of the Theory of Organization," American Sociological Review, 13:25-35, 1948; A.W. Gouldner, Patterns of Industrial Bureaucracy, p. 22, 1954; T. Parsons, "Introduction," to Weber, op. cit., pp. 58-60, footnote 4; David Silverman, The Theory of Organizations, London: Heinemann, pp. 73-74, 1970.

supervision of a higher one; (3) a system of rules and regulations which govern the decisions and actions of its members; and (4) a high degree of impersonality, as contrasted with personal relationships, regulating activities. In brief, organizational members are constrained by a system of control based on rational rules which try to regulate the organizational structure on the basis of technical knowledge.

According to this model, a fully developed bureaucracy, like a machine, would eliminate all emotional elements in behaviour. This mechanistic model of organizations has been called "organizations without people."<sup>48</sup> From the standpoint of the organization, "persons are viewed... in respect to their roles as participants in assigned segments of the cooperative system."<sup>49</sup> However, much research following Weber shows clearly that emotions, values, and beliefs do influence behaviour in formal organizations.<sup>50</sup> In addition, organizational members' age, education, length of service and so on also have significant influence. We shall return to this point later.

In every formal organization there arise informal organizational patterns. The actual structure of any organization is a combination of

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<sup>48</sup>Warren G. Bennis, "Leadership Theory and Administrative Behaviour: the Problem of Authority," Administrative Science Quarterly, 5:3: 260-301, 1959.

<sup>49</sup>Selznick, op. cit., p. 26.

<sup>50</sup>For a discussion of the influence of these variables, see Roethlisberger and Dickson, op. cit.; Dubin, op. cit.; Blau and Scott, op. cit.; S.B. Mattewson, Restriction of Output among Unorganized Workers, New York: Viking, 1931; Donald Roy, "Quota Restriction and Goldbricking in a Machine Shop," American Journal of Sociology, 57:427-442, 1952.

formal and informal elements.<sup>51</sup> In addition to the influence of background characteristics of the members, the roots of these non-bureaucratic systems are embedded in the formal organization itself. Official rules are usually general in order to cover a multitude of situations which may arise. Informal applications of these general rules tend to develop when they are applied to solve particular problems. Moreover, work groups in organizations, like all groups, develop their own norms, practices and informal status structure,<sup>52</sup> and these clearly influence the behaviour of organizational members. For example, work groups may define what is "a fair day's work."<sup>53</sup> Some groups allocate higher social status to members who can master certain tools.<sup>54</sup>

Organizations, especially business organizations, are established to produce something: goods or some type of service. In order to produce, a given form of technology has to be employed. Although the impact of technology on organizations has long been neglected, few researchers today would quarrel about its significance. Many writers stress the importance of technology in shaping the attitudes of the workers. Blauner, for example, argued that different levels of alienation among the work

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<sup>51</sup>Blau and Scott, op. cit., p. 6.

<sup>52</sup>Ibid.

<sup>53</sup>Roethlisberger and Dickson, op. cit., p. 537.

<sup>54</sup>Donald Roy, "Efficiency and 'the fix': Informal Intergroup Relations in a Piece-Work Machine Shop," American Journal of Sociology, 6:255-266, 1954.

force are accounted for by differences in technology.<sup>55</sup> Sayles showed that technology is one of the factors which influenced the frequency and the kind of grievance activity a group engaged in.<sup>56</sup> Many others are interested in technology and organizational structure as well as their environmental settings.<sup>57</sup>

In almost all of the studies dealing with relationships between technology and organizations, superior-subordinate relationships are taken into account. Chinoy, for instance, found that supervision is closer in production departments than in non-production departments.<sup>58</sup> Woodward indicates that hierarchical control is more emphasized in the upper level of technology.<sup>59</sup> Both Blauner and Meissner found that general supervision tends to be prevalent in continuous or automated

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<sup>55</sup>R. Blauner, Alienation and Freedom: The Factory Worker and His Industry, Chicago: University of Chicago Press, 1964.

<sup>56</sup>L.R. Sayles, The Behaviour of Industrial Work Groups: Prediction and Control, New York: John Wiley, 1958.

<sup>57</sup>Stanley H. Udy Jr., Organization of Work: A Comparative Analysis of Production among Non-industrial Peoples, New Haven: Human Relations Area Files Press, 1949; M. Crozier, Bureaucratic Phenomenon, Chicago: University of Chicago Press, 1964; Tom Burns and G.M. Staker, The Management of Innovation, London: Tavistock, 1961; P.R. Lawrence and J.W. Lorsch, Organization and Environment: Managing Differentiation and Integration, Boston: Harvard, 1967; Charles Perrow, "A Framework for the Comparative Analysis of Organizations," American Sociological Review, 32: 194-208, 1967; J. Woodward, Industrial Organization: Theory and Practice, London: Oxford University Press, 1965.

<sup>58</sup>E. Chinoy, Automobile Workers and the American Dream, Garden City: Double Day, p. 31, 1955.

<sup>59</sup>Woodward, op. cit., pp. 51-53.

technology.<sup>60</sup> Despite the differences in the findings, however, all these studies do demonstrate that technology has considerable influence in shaping the authority relationship in organizations.

In the following paragraphs, we shall specify the structural, and technological variables to be investigated in this study.

### I. Structural variables:

The social structure is conceived as a composite of three elements: (a) group size, (b) other role systems (sub-systems of organization), particularly, the relationship between a supervisor and his superior; and (c) skill level of the group. These three variables are discussed below.

#### 1. Group size:

A classic theory concerning the influence of group size on supervisory behaviour concerns the span of control. This theory refers to the number of subordinates a supervisor can oversee. Graicunas has been credited with first elaborating the point that there are numerical limitations to the subordinates one man can control.<sup>61</sup> The assumption behind this concept is that as human beings we have a natural limit to the number of things that we can keep in mind at any one time. Thus, given the

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<sup>60</sup>Blauner, op. cit.; Martin Meissner, Technology and the Worker, San Francisco: Chandler, 1969.

<sup>61</sup>V.A. Graicunas, "Relationship in Organization," Luther Gulick and L. Urwick (eds.), Papers on the Science of Administration, New York: Institute of Public Administration, pp. 183-187, 1937.

amount of time and energy, the margin of choice in terms of supervisory styles decreases as the size of the group supervised increases. A point may eventually be reached where only a humanistic style is possible. It is because of this reason that most writers agree that a wider span requires a good deal of delegation with looser control.<sup>62</sup>

However, since it was first suggested, the theory of the span of control has been controversial. Simon points out its inadequacy. Both the increase and the decrease of the span of control have some undesirable consequences. But the theory itself is of no help in deciding the optimum size of the span.<sup>63</sup> Other writers argue that a supervisor's span of control is a function of human determinants, and the reduction of span to a precise, universally applicable ratio is too mechanistic.<sup>64</sup> The usefulness of Graicunas' formula for analyzing the number of superior-subordinate relationships is weakened because it does not deal with frequency or importance of relationships.<sup>65</sup> The number of relationships is probably less important to a supervisor than their frequency and their demands on his time. Besides, the fact it is possible for two people to interact does not mean that they will or they have to.

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<sup>62</sup>W.G. Scott, "Organizational Theory: An Overview and Appraisal," Journal of the Academy of Management, 4:1:7-26, 1961.

<sup>63</sup>Herbert A. Simon, Administrative Behaviour, second ed., Macmillan, pp. 26-28, 1957.

<sup>64</sup>Scott, op. cit.

<sup>65</sup>Harald Koontz and Cycil O'Donnell, Principles of Management, 3rd ed., McGraw-Hill, pp. 221-222, 1964.



Other factors such as similarity and complexity of functions, level of subordinates' education and training, and the ability to communicate may also affect the span and the style of supervision.<sup>66</sup>

In addition, some researchers argue that direct or personal control is not the only way to achieve proper supervision. Long-range or impersonal control mechanism can be equally effective. Kauffman reported how the United States Forest Service has coped with the problem of the wide geographical dispersion of its units.<sup>67</sup> In addition to its elaborate manuals and guides, the Forest Service utilizes special techniques for detecting and discouraging deviations from official procedures among its scattered posts in the field. Similarly, Blau observed that in the Employment Agency he studied, performance records (one of the impersonal control mechanisms) were used to exert direct pressure on the interviewers to improve their performance. Thus, both personal and impersonal control can be used as ways of supervision. When the latter is used, the span of control can be considerably widened without impairing effectiveness. However, judging from the elaborate arrangements instituted by some organizations, such as the Forest Service mentioned above, tight control of large and widely dispersed groups is not easily achieved. The work setting of the groups studied in this research is industrial plant. Other than technological control (e.g., assembly-line),

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<sup>66</sup>Harold Stieglitz, "Optimizing the Span of Control," Management Record, 24:25-29, 1962.

<sup>67</sup>Herbert Kauffman, The Forest Ranger, Baltimore: Johns Hopkins Press, 1960.

the most frequently used supervisory technique is personal checking. Therefore the span of control theory seems to be a proper base form which to derive our hypothesis. It is thus hypothesized that the larger the span of control the higher the probability a supervisor will assume a humanistic supervisory style. As it was defined earlier, a "humanistic" supervisor will (a) be less production-oriented, (b) be more worker-oriented, (c) control his workers less closely, and (d) spend more time on office work.

## 2. Relationship with superior:

As a supervisor takes directions from his superiors it is possible that his style of supervision will be more or less determined by the kind of relationship that obtained between him and his superiors, especially his immediate superior. If a superior concerns himself with minute details of his subordinate supervisor's tasks, so that he has little opportunity to make decisions regarding the details of the tasks to be performed, the supervisor may adopt the same policy in his relations with the workers, in as much as the superior has the power of reward and punishment. In such case the supervisor may be regarded as adopting a policy of bureaucratic supervision.

If, on the other hand, the superior leaves it to his subordinate supervisor to work out the details of his tasks, the supervisor may in turn be expected to allow his subordinates to experiment because he is confident that his own boss will back him up if his judgement is questioned by his workers, by other supervisors, or even by top

management.<sup>68</sup> Thus, supervisors who are under humanistic supervision tend to adopt a humanistic style; those who are under bureaucratic supervision tend to adopt a bureaucratic style.

There is ample evidence in the literature that supervisory styles tend to be handed down from higher levels to low levels in organizations. For example, Katz and his associates studied the relationships among productivity, supervision and morale both in an office and among the railroad workers.<sup>69</sup> In both cases, they found there was some degree of resemblance of supervisory styles between foremen and their general foremen.

Fleishman and his associates in studying a group of second-line supervisors also found that superiors who were "considerate" tend to have foremen supervising their men correspondingly.<sup>70</sup> In addition, Walker, Guest and Turner,<sup>71</sup> Guest,<sup>72</sup> Leavitt,<sup>73</sup> Jacobson et

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<sup>68</sup>L. Sayles, and G. Strauss, Human Behaviour in Organizations, Englewood-Cliffs: Prentice-Hall, pp. 31-33, 1966.

<sup>69</sup>Katz, Maccoby, Gurin, and Floor, op. cit.

<sup>70</sup>E.A. Fleishman and D.A. Peters, "Leadership Attitudes, and Managerial Success," Personnel Psychology, 15:127-43, 1962.

<sup>71</sup>C.R. Walker, R. Guest, and A.N. Turner, The Foremen on the Assembly Line, Boston: Harvard University Press, p. 25, 1956.

<sup>72</sup>R.H. Guest, Organizational Change and The Successful Leader, unpublished doctoral dissertation, Columbia University, 1960, cited by A. Etzioni, A Comparative Analysis of Complex Organizations, New York: The Free Press, p. 309, 1961.

<sup>73</sup>H. Leavitt, Managerial Psychology, The University of Chicago

al.,<sup>74</sup> all indicate the existence of the phenomenon of the transmittal of supervisory styles in industrial organizations.

However, other researchers reported that the supervisory styles of alternate hierarchical levels are similar. For instance, in his study of the employment agencies, Blau found that none of the four supervisors (in City Agency) whose subordinates expressed high loyalty to them felt loyal to his own superior, while five of the six supervisors (in the same agency) who did not command high loyalty from their subordinates expressed loyalty to their section chief. His interpretation of this finding was that loyalty of subordinates is a source of social support for a superior. The manner in which a supervisor seeks support and approval of his superior is by "becoming attached to him (loyalty) and emulating his style of supervision."<sup>75</sup> If a manager (third level) does not have the loyalty of the section chiefs (second level) under him, it will be important for them to obtain social support by commanding the loyalty of their subordinates, the first-line supervisors. If the section chief is successful in establishing supportive working relationships with the (first-line) supervisors under him, these supervisors would be less motivated to win the allegiance and respect of their subordinates. "Hence, the orientations of alternative

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Press, pp. 367-368, 1964.

<sup>74</sup>E. Jacobson, W.W. Charters, and S. Lieberman, "The Use of Role Concept in the Study of Complex Organizations," Journal of Social Issues, 7:18-27, 1951. These writers argue that supervisors model on what they believe their superiors expect of them.

<sup>75</sup>Blau and Scott, op. cit., p. 162.

hierarchical levels would be similar, and those adjacent levels different."<sup>76</sup> But this interpretation is not convincing. As Blau has admitted, it is highly speculative. One argument against Blau's position might be that if a supervisor is loyal to his superior, their supervisory styles would be similar, because to be loyal to one's superior is the way to get his support and approval, Blau argued, and one way to get one's superior's support and approval is to emulate his supervisory style. Secondly, the reason for the phenomenon is not as clear as Blau argued. If a supervisor does not have the allegiance of his subordinates and, at the same time, he is loyal to his superior, it is possible that because of his strong ties of loyalty to his superior there is less need to win the allegiance of his own subordinates. But it is also possible that his qualities do not allow him to command the respect of his subordinates.

In brief, we argue that the style of supervision which a supervisor adopts is strongly influenced by his superiors, especially his immediate superior. The hypothesis we are going to test is: Supervisors who are under humanistic supervision tend to (a) control their workers less closely; (b) be more worker-oriented; (c) be less production-oriented, and (d) spend more time on office work. Those who are under bureaucratic supervision tend to (a) control their workers more closely; (b) be less worker-oriented; (c) be more production-oriented, and (d) spend more time on the shop floor.

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<sup>76</sup>Op. cit., p. 163.

### 3. Skill level of work group:

In a role system, the behaviour of the incumbent of one role is constrained by the expectations of the incumbents of other roles. Since workers at different levels of skill have different expectations of their supervisor, it is reasonable to assume that the latter may exercise his authority differently over subordinates at different skill levels. In North American societies, workers in general tend to be resentful of authoritarian supervision. This tendency among highly skilled workers, craftsmen, and professionals is particularly stronger. Journeymen printers, for example, are very proud of their craft. They have a long tradition of self regulation.<sup>77</sup> With such groups, nothing but humanistic supervision would be acceptable. Besides, supervisors of these groups are themselves members of the craft or profession. They know the expectations of their subordinates and most likely will supervise accordingly in order to perform their own roles successfully.

In addition to workers' expectations, their status, hence prestige, also affects supervision. It is only common sense that a college professor would treat a graduate student differently from an undergraduate student. Sayles reported that "conservative groups" in industries are usually controlled less strictly, and their demands are usually readily met by the management, because of their "crucial and scarce skills."<sup>78</sup>

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<sup>77</sup>Sayles and Strauss, op. cit., pp. 31-33; Blauner, op. cit.

<sup>78</sup>L. Sayles, Behaviour of Industrial Work Groups, New York: John Wiley and Sons, pp. 124-125, 1958.

The relationship between the skill level of the workers and supervision seems to be closely related to "unit-production" according to Woodward.<sup>79</sup> In unit-production, in contrast with mass production, relatively higher levels of skills are required at the worker level. These skills include not only the technical performance of operations, but also some knowledge about correcting errors, inspections and control. Where the control functions reside in the hands of the workers, the need for supervision is reduced.<sup>80</sup>

However, there is some indication that supervision and workers' level of skill are inversely related. That is, when the skill level is high, bureaucratic supervision, rather than humanistic supervision, would be prevalent. Woodward reported that the median number of levels of management in the hierarchy in processing-production companies was six, while in mass-production companies, it was only four.<sup>81</sup> While the number of levels of management may indicate the closeness of supervision, the nature of technology makes a difference. Dubin argued that the location of responsibility for production is different when the technology employed is of a different kind.<sup>82</sup> In continuous-process industries like oil or gas manufacturing, because the cost of error in

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<sup>79</sup>Woodward, op. cit., p. 39.

<sup>80</sup>Dubin, op. cit., in Dubin et al., op. cit., p. 15.

<sup>81</sup>Woodward, op. cit.

<sup>82</sup>Dubin, op. cit., pp. 14-15.

processing is high, the direct control of product quality and quantity is transferred from operatives to supervisors. Under these conditions, a supervisor is no longer primarily the supervisor of people but rather the supervisor of the technology.<sup>83</sup>

From the above discussion, we may say that the higher the skill level of the workers, the more likely it is for the supervisor to adopt a humanistic supervisory style. However, this does not necessarily mean that the opposite is also true. The relationship between semi-skilled and unskilled workers and their supervisors may be considerably affected by the kind of technology employed. Take assembly line technology for an example. Workers on the assembly line usually are semi-skilled or even unskilled in some cases; but the relationship between these workers and their supervisors could generally be described as humanistic supervision. That is because the work on the assembly line is predominantly constrained and paced by the conveyor. Inasmuch as the presence of the conveyor assures coordination and a certain level of productivity, it minimizes the need for supervisory direction. Meanwhile, since the workers are bound to their place on the line, the supervisor must make necessary arrangements to ensure that tools are in good repair and that supplies are readily available. The task of the supervisor is thus transformed from direction and checking on his subordinates to helping them and being their trouble shooter.<sup>84</sup>

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<sup>83</sup>Op. cit., pp. 15, 24.

<sup>84</sup>Blau and Scott, op. cit., pp. 176-177.



In brief, we argue that humanistic supervision tends to prevail in groups of high skill level. The particular hypothesis to be tested is: the higher the skill level of the worker group under supervision, the higher the probability that the supervisor will (a) be less production-oriented, (b) be more worker-oriented, (c) control his workers less closely, and (d) spend more on office work.

## II. Technological variables:

Although Woodward has pointed out that organization theory traditionally has ignored technology as an element in its conceptual framework,<sup>85</sup> there is no lack of indications in the literature that technology has great impact on organizational behaviour. The seminal studies by Trist and Bamforth on the social consequences of the long-wall method of coal getting<sup>86</sup> and by Walker and Guest on the men on the assembly-line<sup>87</sup> have been followed by a range of work. Examples of this are the studies by Chinoy (on automobile workers),<sup>88</sup> Blauner (on alienation and freedom of workers in four different technological

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<sup>85</sup>Joan Woodward, Industrial Organization: Behaviour and Control, London: Oxford University Press, 1970.

<sup>86</sup>E.L. Trist and E.K. Bamforth, "Some Social Psychological Consequences of the Longwall Methods of Coal Getting," Human Relations, 4:3-38, 1951.

<sup>87</sup>Charles Walker and Robert H. Guest, The Man on the Assembly Line, Cambridge, Mass: Harvard University Press, 1956.

<sup>88</sup>Chinoy, op. cit.

settings),<sup>89</sup> Herbst (autonomous group functioning),<sup>90</sup> Mann and Hoffman (automation and the workers),<sup>91</sup> Sayles (industrial work groups),<sup>92</sup> Meissner (technology and the worker),<sup>93</sup> Burack (technology and supervision),<sup>94</sup> and Hickson et al. (operations technology and organizational structure).<sup>95</sup> The studies by the Woodward group itself are exclusively intended to examine the relationship between technology and organizational behaviour.<sup>96</sup>

A great many technological variables can be investigated. Production system (unit, mass production and continuous production),<sup>97</sup>

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<sup>89</sup>Blauner, op. cit.

<sup>90</sup>P.G. Herbst, Autonomous Group Functioning, London: Tavistock, 1962.

<sup>91</sup>F.C. Mann and L.R. Hoffman, Automation and the Worker, New York: Holt, Rinehart and Winston, 1960.

<sup>92</sup>Sales, op. cit.

<sup>93</sup>Martin Meissner, Technology and the Worker: Technical Demands and Social Process in Industry, San Francisco: Chandler, 1969.

<sup>94</sup>Elmer H. Burack, "Technology and Some Aspects of Industrial Supervision: a Model Building Approach," Journal of Academy of Management, 9:43-66, 1961.

<sup>95</sup>David J. Hickson, D.S. Pugh and Diana C. Pheysey, "Operations Technology and Organization Structure: an Empirical Reappraisal," Administrative Science Quarterly, 14:3:378-397, 1969.

<sup>96</sup>Woodward, op. cit., 1965, 1970; Dorothy Wedderburn and Rosemary Crompton, Workers' Attitudes and Technology, Oxford: Cambridge University Press, 1972.

<sup>97</sup>Woodward, op. cit., p. 39, 1965, Fig. 11; Zwerman used the

operations technology (degree of automation, sequence of operations, specificity of evaluation of operations, continuity of the units of the throughput),<sup>98</sup> and process production (mechanization, interdependence, instrumentation, sub-division of labour, technical engineering organization),<sup>99</sup> are some of the technological variables that have been utilized in previous studies. But these variables are more or less differentiated at the organizational level. For the purpose of this study which deals with supervision at the machine-operator level, task complexity and machine/man control seem to be more relevant to supervisory behaviour than a gross categorization, such as unit, batch, and mass production, etc. In the following, we will define these two concepts, discuss their relationship with supervision, and review relevant literature.

### 1. Task complexity:

The concept of complexity has two different meanings that are not always made clear, either in common usage or in discussions of organizations. To say something is complex may mean that it is complicated or difficult to understand, or it may mean that the thing is composed of many different though related or connected parts. Two

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same classification of industrial production systems. See W.L. Zwerman, New Perspective on Organization Theory: An Empirical Reconsideration of the Marxian and Classical Analysis, West Port, Conn: Greenwood, 1970.

<sup>98</sup>Hickson, Pugh, and Pheysey, op. cit., pp. 380-381.

<sup>99</sup>Burack, op. cit., pp. 46-47.

aspects of organizational task complexity may be distinguished that correspond roughly to these two meanings. They are technical complexity, which will be defined as the level of knowledge or judgement that are required by the task; and functional complexity which will be defined as the number of different independent operations and activities that are involved in carrying out the task. These are, of course, not mutually exclusive aspects of complexity. An organizational task might be both technically and functionally complex. In fact, it is reasonable to say that the two types of complexity are closely related. The new military, firms employing continuous process technology and correctional institutions with rehabilitative goals, all seem, when they are compared to their simpler counterparts, to vary along these two dimensions of technical and functional complexity.

Thus, a complex task of a group is one that requires a high level of knowledge or judgement and that involves a great many different though interdependent operations or activities. The level of technical training required of employees may be taken as indicator of technical complexity. Functional complexity may be measured in terms of the number of different occupational specialties involved and the number of crews and operations required by the task.

In this study, the term task complexity is referred to the complexity of groups tasks. While there is a distinction between a group's tasks and those of its supervisor, it is reasonable to assume that to supervise a group with complex tasks involves more work than to supervise a group with simple ones. Thus the task of the supervisor becomes

more complex. How does task complexity affect supervisory behaviour? Based on the administrative-load theory, we postulate that the more complex the tasks under supervision, the greater the probability that the supervisor will adopt a humanistic rather than bureaucratic style. The administrative-load theory is basically an extension of the familiar span of control theory to include items other than the number of subordinates. It suggests it becomes all the more difficult for a supervisor to exercise close hierarchical control with the increasing number of different items to which he must give his time, attention and energy. In other words, complex tasks impose a heavier administrative load upon supervisors than simple ones, so that they cannot practise bureaucratic supervision.

Findings of the previous studies indicate that task complexity does have considerable impact on supervision. At the organizational level, Janowitz's study of the traditional and modern military, for example, showed that military technological changes cause internal social relation changes in the military. "Modern weapons involve complex division of labour and high level of technical skills. The morale and coordination of the individual members of a group cannot be guaranteed by authoritarian discipline."<sup>100</sup> Zald's study of correctional institutions with both custodial and treatment goals reveals that in treatment institutions, the organizational tasks are more complex. And

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<sup>100</sup>M. Janowitz "Changing Patterns of Organizational Authority: The Military Establishment," Administrative Science Quarterly, 3:473-493, 1959.

the superintendent's power is widely distributed among the executives and specialists. In custodial institutions, on the contrary, power is more centralized.<sup>101</sup>

At the group level, there are also indications in the literature that task complexity affects the way a supervisor exercises his authority. Brewer extensively studied two policy-writing departments of an insurance company.<sup>102</sup> Compared with Department B, Department A's personnel needed more training and experience to be qualified for their positions; it handled more lines of insurance and was responsible for more branches and agencies. In other words, the work of Department A was more technically and functionally complex than that of Department B. By observing and analyzing the superior-subordinate interactions in the two departments, Brewer found that the extent to which the superintendent (first-line supervisor in this company) of Department A concentrated on giving directives, opinions and information and upon checking, testing, and criticizing subordinates was less than that of the head of Department B.<sup>103</sup> In other words, high task complexity was associated with less close hierarchical control.

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<sup>101</sup>M.N. Zald, "Organizational Control Structure in Five Correctional Institutions," American Journal of Sociology, 68:335-345, 1962.

<sup>102</sup>John Brewer, "Organizational Patterns of Supervision: A Study of Debureaucratization of Authority Relations in Two Business Organizations," in O. Grusky and G.A. Miller, The Sociology of Organizations: Basic Studies, New York: Free Press, pp. 341-347, 1970.

<sup>103</sup>Brewer, op. cit., p. 345.

In studying the organizational behaviour of office workers, Crozier compared the supervisory styles of the managers of policy-men groups and those of clerk and archivist groups of six insurance companies. He found that the managers of the policy-men groups tended to be liberal and that those of the clerks tended to be authoritarian. It is obvious that the tasks of the insurance agents are far more complex than the work of the clerks.<sup>104</sup>

A more recent study of organizational behaviour in an industrial setting provides some very interesting findings. Wedderburn and Crompton studied a large chemical company with the intention of investigating the impact of technology upon attitudes and behaviour within organizations.<sup>105</sup> Particularly relevant in this context is their comparison of the role of supervision in three Works. Both Works A and Works B utilized continuous process technology. But the task of Works A where gases and liquids were produced was less functionally complex than that of Works B, where a big variety of solid substance was produced. The technology used in the chemical area of Works C was similar to that of Works B. The fibre area of Works C used automated spinning and drawing machines. Each area was under the supervision of a foreman. In Works A, "the typical pattern of interaction between workers and the supervisor was one where the worker approached the foreman whenever he needed

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<sup>104</sup>M. Crozier, The World of the Office Worker, tran., David Landau, Chicago: The University of Chicago Press, 1971.

<sup>105</sup>Wedderburn and Crompton, op. cit.

help. The supervisor had a trouble shooting role, where he was as likely to be required to offer advice as to give orders..."<sup>106</sup> In Works B, the supervisor was more of an administrator and organizer. Much of his time was taken up with organizing production changes and re-allocating men. There were also more men for him to keep an eye on, so that he was less available to give help. However, the fact that he was supervising more men made it more difficult to allow freedom and flexibility in respect of informal breaks which the workers in Works A enjoyed.<sup>107</sup>

As described above, there was a mixture of technologies in Works C. In its chemical area, the general role of the supervisor was quite similar to that of the supervisor of the chemical area in Works B. It was in the fibre and filament yarn areas of Works C that it differed to the greatest extent. In these areas, a great part of the supervisor's job was to organize production. He had to supervise and order changes in variety. In order to maintain full production and quality, he had to supervise and monitor the work of the operators closely, although he would be called upon to help if technical difficulties did arise.<sup>108</sup>

The following table summarises the technology and supervision

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<sup>106</sup>Ibid., p. 129.

<sup>107</sup>Ibid., pp. 129-130.

<sup>108</sup>Ibid., p. 130.



in the three Works.

Table II-1 COMPARISONS BETWEEN WORKS A, WORKS B,  
AND WORKS C OF SEAGRASS COMPANY

	TECHNOLOGY	PRODUCTS	TASKS	STYLE
WORKS A	continuous flow	uniform	less complex	humanistic supervision
WORKS B	continuous flow	variety	more complex	bureaucratic supervision
WORKS C (Fibre areas)	automatic machines	variety	more complex	bureaucratic supervision

A generalization one can derive from this is: a high degree of functional complexity is associated with bureaucratic supervision. This is contrary to what can be predicted from the administrative-load theory, and it is also inconsistent with the findings of other studies. A closer examination of the research indicates that "a number of important changes in the supervisory structure in Works C has taken place since this study was made."<sup>109</sup> Although these changes have not been specified, there is some indication why some of those changes were made at the time the researchers were on the site. The workers in the draw twist area were rotated between rooms with the results that the supervisors were not

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<sup>109</sup>Ibid.

able to build up a continuing relationship with the men working under them.<sup>110</sup> Could it be the rotation of personnel that caused the close supervision? Because whenever there was a change of personnel, the supervisor had to give instructions. Yet he had to take care of the quality and quantity of the production. The extra administrative load imposed upon him by the rotation of men could have been too heavy for the supervisor, so that changes had to be made to provide adequate supervision. Of course, this position is only speculative. But there is reason to assume that complexity is not associated with bureaucratic supervision, as it seemed to be in Weddenburn and Crompton's research report.

In brief, based on the administrative-load theory, we argue that humanistic supervision and complexity are positively related. The hypothesis to be tested is: the more complex the tasks of the group, the greater the probability that the supervisor (a) is less production-oriented, (b) is more worker-oriented, (c) controls his workers less closely, and (d) spends more time on office work.

## 2. Machine/man control:

The concept of machine/man control is defined in terms of the degree of autonomy or freedom the workers enjoy. Machine control means the pace or rhythm of work is predominantly controlled by the machinery, and the tools and material to be used are decided by other people other than the workers themselves.

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<sup>110</sup>Ibid.

Man control, on the other hand, means that the workers have relatively more autonomy in controlling their work. Not only the type of work is not machine-paced (or less so), there are also elements of judgement involved. Combining the two, the higher the degree of machine/man control, the higher the degree of autonomy the workers have and vice versa. Operationally, machine/man control is defined as the extent to which a worker can control his work pace, and the extent to which he can make decisions on what tools and material to be used.

The degree of machine/man control the workers have affects the style of supervision that a supervisor adopts. It is hypothesized that the higher the degree of machine/man control a group of workers have the greater the probability that its supervisor adopts a humanistic style of supervision.

There are at least two reasons for this relationship between supervisory style and machine/man control. The first, the technological need for worker autonomy; the second, the pressure of time to get the work done.

In some types of technology, a great amount of worker autonomy is required. In maintenance, for instance, a large part of the job is to tackle unexpected problems the solution to which can not be programmed by the management. Invariably, the workers must be allowed to choose their tools and methods as they see fit. In addition, employees in the maintenance departments generally move around a great deal to perform widely dispersed tasks and to obtain tools, material, and instructions. It is extremely difficult for the supervisor to check each worker

closely.<sup>111</sup> Furthermore, this involves frequent use of judgement and initiative which cannot be guaranteed by bureaucratic supervision. Under these conditions, bureaucratic supervision is apparently not the proper style of supervision.<sup>112</sup>

In other types of technology, assembly-line for example, little worker autonomy is needed. Therefore, more structuring of work for subordinates is prevalent. In addition, the standards in this type of technological setting are clearly defined. It is therefore much easier for the supervisor to check closely.

Previous studies also indicate that the time factor is related to machine/man control. In production departments, particularly where assembly-line technology is used, supervisors are constantly under the pressure of time. They must put more emphasis on production rather than on "human relations." In a study of a motor-truck manufacturing plant, Fleishman and his associates revealed that there was a clear cut tendency for the divisions that were under the most pressure of time to have foremen who were most inclined toward "initiating structure," meaning production orientation which is one dimension of supervision.<sup>113</sup>

Comparing continuous-processing with operator-machine types of technology, Meissner found that time is less demanding in the former

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<sup>111</sup>Chinoy, op. cit.

<sup>112</sup>Blauner, op. cit., p. 43.

<sup>113</sup>Fleishman, Harris, and Burt, op. cit., p. 99.

than in the latter, because in continuous processing technology the control over the production process is built into the integrated operation which is "merely" being "watched" by workers. After all, if a worker can heat a can of soup on his work,<sup>114</sup> he is certainly not under the pressure of time. Under these circumstances, there is less need for the supervisor to control his workers closely.

To sum up the discussion in this section, the nature of work is viewed as ranging from completely machine-spaced to entirely man-controlled. Machine/man control is, therefore, a concept describing the degree of worker autonomy in terms of machine-operator relationships. It is argued that humanistic supervision is positively correlated with machine/man control, i.e., the degree of worker autonomy. The hypothesis to be tested is: the higher the degree of machine/man control a group of workers have, the higher the probability the supervisor (a) is less production-oriented, (b) is more worker-oriented, (c) controls his workers less closely, and (d) spends more time on office work.

#### BACKGROUND CONSTRAINTS:

We have argued that background characteristics form an important component of the organizational environment which exerts constraints upon supervisory behaviour. In this section, the influence of these characteristics will be discussed.

We know that past experience is indicated by factors such as age, sex, marital status, ethnic origin, education, religion and the length

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<sup>114</sup>Blauner, op. cit., pp. 137-138.

of service. There has been a great deal of research showing that these variables have influences upon organizational behaviour. For example, the literature on guilds and early craft unions has shown clearly the importance of age in the acquisition of skills and status.<sup>115</sup> There is also evidence in the literature that prestigious background characteristics (i.e., higher age, seniority, education, and certain ethnic origins) of workers are often associated with cohesiveness and solidarity.<sup>116</sup> Education has been reported by various researchers to have strong influence on people's aspirations and satisfaction in the work process.<sup>117</sup>

Along with age and education, sex is another important determiner of experience. Sex discrimination is an old issue in industry. Women supervisors are accused of being too emotional, autocratic, partial, sensitive, and overwhelming.

The literature on various types of segregation within the labour force is voluminous. There is no need to review it here. It suffices

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<sup>115</sup>Henri Pirenne, "Guilds, European," Encyclopedia of Social Sciences, New York: Macmillan, Vol. VII, pp. 208-214, 1930.

<sup>116</sup>S.E. Seashore, Group Cohesiveness in the Industrial Work Group, Ann Arbor: Institute for Social Research, University of Michigan, 1954; A. Zalesnik, C.R. Christensen, and F.J. Roethlisberger, The Motivation, Productivity and Satisfaction of Workers: A Prediction Study, Boston: Graduate School of Business Administration, Harvard University, pp. 69, 144-158, 198-212, 1958.

<sup>117</sup>E. Friedmann and Robert Havighurst, The Meaning of Work and Retirement, Chicago: University of Chicago Press, 1954; N.C. Morse and R.S. Weiss, "The Function and Meaning of Work and the Job," American Journal of Sociology, 20:191-198, 1955; Blauner, op. cit., pp. 29, 118, 153.

to say that, in general, industry is one of the agents of racial, ethnic, and religious segregation. Although it brings people together, it also segregates them in different types of work. Ethnic stratification in French Canadian and American industries are classic examples.<sup>118</sup>

However, almost all of the literature in this area is about the rank and file workers. Very little attention has been given to the influence of these background variables on supervisory behaviour. But, supervisors, like all other organizational members, are not immune to their own background characteristics. If this is true, then what influence these characteristics have on supervision is an important question. In the following, we shall discuss the possible influence of age, education, and length of service on supervisory behaviour. Since we do not have data on the religious affiliations of the supervisors who participated in this research project, and their sex, marital status, and ethnic origins are quite homogeneous, these variables are excluded from the discussion.

In complex societies people are socialized in many different ways before they become members of organizations and this socialization continues through their careers. Since the characteristics that people bring with them into the organization do not necessarily coincide with the normative structure of the organization, they therefore have to go through a process of resocialization. In addition to norms, values, and

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<sup>118</sup>E.C. Hughes, French Canada in Transition, Chicago: University of Chicago Press, 1943; also published in Toronto: W.J. Gage Co., 1943; L. Warner and J.O. Low, The Social System of the Modern Factory, New Haven: Yale University Press, 1947.

the technical aspect, one has to learn the intricate web of interpersonal relationships, when he first joins an organization. As Roethlisberger and Dickson have observed interpersonal relationships in industries are subtle, finely shaded and sometimes become complicated.<sup>119</sup> For example, when a person is in the presence of his supervisor alone he usually acts differently from the way he acts when his supervisor's supervisor is also present. Likewise, his supervisor acts toward him alone quite differently from the way he behaves when his own supervisor is also there. A vast amount of social conditioning takes place by means of which a person learns to maneuver himself through the intricacies of these finely shaded distinctions.

The underlying factor of these distinctions is the fact that authority is unequally distributed in organizations. Occupants of higher offices are vested with the authority of sanctions. However, in most cases, evaluation is not entirely objective. Superiors have plenty of room for personal discretion. Thus, to achieve assigned goals is important. To achieve them in one's superior's way is likely more important, if not absolutely necessary. A newly appointed, young foreman is in no position to know the subtlety of this nature. Even if he has heard about it, he might not believe it. Only after unpleasant, possibly painful experience, he may learn "the ropes." It seems reasonable, then, to hypothesize that the older supervisors' style of supervision may be more susceptible to the influence of his superior; whereas younger ones may

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<sup>119</sup>Roethlisberger and Dickson, op. cit., pp. 554-555.



be more responsive to the "formal" requirements of their job.

Along with the point discussed above, another which is related to the nature of modern society should also be taken into consideration. In contemporary modernized societies, there is extremely rapid change. The rate of accumulated experience of a technically trained person is far less rapid than the rate of innovations produced by aggregate experts.<sup>120</sup> Thus, while age and seniority may bring status to a person in industry, they may also make his skills and knowledge obsolete,<sup>121</sup> and may make him less secure when he is technically incompetent, hence more under the influence of his superior in getting things done in his department. It is also possible that, since his authority of competence is not strong, he may rely more on his authority of position. Thus, his supervision may tend to be more bureaucratic.

A third point which is purely related to the length of service may also have some impact on supervisory behaviour. That is the period of time that a supervisor and his group work together. In an attempt to

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<sup>120</sup>W.E. Moore, "Aging and the Social System," in John C. McKinney and Frank T. De Vyver (eds.), Aging and Social Policy, New York: Appleton Century-Crofts, p. 40, 1966.

<sup>121</sup>This does not only happen in industries, it happens in other types of organizations, too. For example, "Traditionally, this [on-the-job training of new nurses] was the responsibility of the head nurses of the various floors and wards, most of them women well along in years. As educational theories changed and the new profession of nursing administration developed, the feeling grew that these older head nurses were not providing adequate training. To coordinate their efforts, college-trained 'clinical instructors' were engaged in general supervision and eventually were given the title of 'supervisor.'" See George Strauss, "The Changing Role of the Working Supervisor," in Robert Dubin (ed.), Human Relations in Administration, 3rd ed., Prentice-Hall, p. 235, 1968.

discover the influence of demographic factors on the agreement between subordinate and self-described leadership behaviour, Evans found that when work group members have been in the same unit for a longer period of time, agreement between a supervisor and his work group in terms of describing a supervisor's style of supervision will occur.<sup>122</sup> One can infer from this finding that, given the condition of reasonable stability of a work group, a high degree of understanding and mutual trust may develop between a supervisor and his men. Thus close control seems to be unnecessary.

We now turn to examine the impact of education on supervisory behaviour. Many industries in recent years have started to adopt a policy of requiring a college education as a qualification for first-line supervisors. Management recognizes that college students may not have supervisory experience, but their college education and specific training in supervisory practices will usually provide the necessary background for supervision, if they are first given a minimum amount of work experience at the operative level. It has been reported that supervisors with a college education are usually successful in doing their jobs.<sup>123</sup> What factors contribute to their success? It is likely that knowledge and skills of the college graduates enable them to adapt with

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<sup>122</sup>Martin Evans, "Leadership Behaviour: Demographic Factors and Agreement Between Subordinate and Self-Description," Personnel Psychology, 25:649-653, 1972.

<sup>123</sup>Herbert Chruden and Arthur W. Sherman, Jr., Personnel Management, 3rd ed., Southwestern Publishing Co., p. 378, 1968.

less difficulty to a rapidly changing technological world. As one personnel director asserts, "Somehow if you never use a single thing you learned in college, college training gives you a broad base by which to handle the day-to-day problems."<sup>124</sup> Their success is also likely a result of their ability to work effectively with higher levels of management personnel. Most of these personnel are likely to be college graduates and very often accept the new supervisor as a member of the management group. However, acceptance by higher management alone does not make a supervisor successful unless he works well with his subordinates. It is argued that this acceptance by higher authority is soon recognized by his subordinates and constitutes what Pelz called "influence" that the supervisor has with his group.<sup>125</sup> Because of the support the supervisor receives from management, the group is willing to follow him and possibly instruct him in areas where he may be lacking in knowledge in order to insure that work is performed properly. If this argument holds, we can infer, then, close supervision is not necessary in this situation.

On the other hand, if a supervisor is promoted internally, he is most likely less educated. Also, he is likely well along in years when he gets there. His style of supervision would be influenced by factors which have been discussed above.

In brief, we have considered three background variables - age,

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<sup>124</sup>Strauss, "The Changing Role of the Working Supervisor," p. 235.

<sup>125</sup>D.C. Pelz, "Influence: a Key to Effective Leadership in the First-Line Supervisor," Personnel, 29:3:209-219, 1952.

length of service, and education - which influence supervisory behaviour along with structural and technological factors. Various arguments have been presented. While they all seem to be theoretically sound, they lead to contradictory predictions. For example, if one takes a "knowing the ropes" approach, we would predict that a better-educated, young foreman would be more responsive to the formal requirements and, consequently, tends to be bureaucratic in supervision. However, if we take the "influence" (with higher management) position, we would predict the opposite, for the workers' awareness of their supervisor's "influence" would create or promote the willingness to follow the foreman. Thus, tight control over subordinates is made unnecessary.

As there seems to be, at the moment, no clear theoretical or empirical basis for stating the relationships between background characteristics and supervisory style, no hypotheses will be presented. The analysis of the data, however, may suggest an appropriate formulation of the relationships.

#### SUMMARY

The purpose of the present study is to investigate the factors which influence the way a supervisor exercises his authority. In order to explore this relationship, a theoretical framework was developed, relevant literature reviewed, and a set of hypotheses derived.

The general proposition developed is that supervisory behaviour is the product of the interaction of organizational structure, technology, and socialization. Three structural, two technological, and three back-

grounds variables will be investigated. The structural variables are group size, relationship with the superior (a supervisor's perception of his superior's supervisory style), and skill level of the work group under supervision. Technological variables include task complexity and machine/man control. For background characteristics, attention is given to age, length of service, and education.

The superior-subordinate relationship is viewed as a role system which is operating in an organization. As far as the supervisor is concerned, in playing his role, the system allows variation along four dimensions: production orientation, worker orientation, closeness, and time allocation. These four dimensions are the dependent variables for this study. The hypotheses to be tested are as follows:

1. The larger the group, the higher the probability that the supervisor will (a) be less production-oriented; (b) be more worker-oriented; (c) control the workers less closely; and (d) spend more time on office work.
2. Supervisors who are under humanistic supervision tend to (a) be less production oriented; (b) be more worker-oriented; (c) control their workers less closely; and (d) spend more time on office work; those who are under bureaucratic supervision tend to (a) be more production-oriented; (b) be less worker-oriented; (c) control their workers more closely; and (d) spend more time on the shop floor.
3. The higher the skill level of the work group under supervision, the higher the probability the supervisor will (a) be less production-oriented; (b) be more worker-orineted; (c) control his workers less closely; and (d) spend more time on office work.

4. The more complex the task to be performed, the higher the probability that the supervisor will (a) be less production-oriented; (b) be more worker-oriented; (c) control his workers less closely; and (d) spend more time on office work.
5. The higher the degree of machine/man control, the higher the probability that the supervisor will (a) be less production-oriented; (b) be more worker-oriented; (c) control his workers less closely, and (d) spend more time of office work.

## Chapter III

### METHODS AND PROCEDURES

#### The Definition of Supervisor

The definition of supervisor used in this study is based on the assumption that one purpose of the management of an industrial organization is to control operations on the shop floor. This control can be exercised in two ways: first, by administrative methods, i.e., at a distance; and secondly, by actual 'observing', inspection and direction in the area of operations. A 'supervisor' (as distinct from a pure administrative manager) is someone who exercises control by the latter method.

Within this definition, three distinct levels of authority can be distinguished:

- 1) The second-line supervisors (general foreman, assistant general foreman, senior foreman), directing the supervisory system and linking it with higher management.

- 2) The first-line supervisor (foreman), that is, the man who is regarded by the operators as their 'immediate boss' and who possesses direct formal authority over them.

- 3) The semi-supervisor (crew leader, shift leader, lead hand), combining supervisory and operative duties and possessing more informal than formal authority.

As we have discussed in Chapter I, the role of first-line

supervisors in industrial organizations is crucial for the efficient realization of organizational goals due to the fact that they are directly and immediately involved with the particular operations and activities of the organization and with the groups that carry out these activities: the workers. The focus of this study is therefore mainly on the first-line supervisors. The immediate superiors of the first-line supervisors who were in our sample were also interviewed in order to test our hypothesis about the relationship between the two levels of authority.

First-line supervisors are given different titles in the industries. While the usual title is foreman, in some cases they are simply called supervisor. Furthermore, in many cases, the term supervisor refers to a lead hand or shift-leader - semi-supervisor, in our terms.

The term "foreman" is sometimes ambiguous. In a few cases, a supervisor might be called foreman; but he could be a general foreman in reality. For example, in the Material Handling Division of Company B, the head of the Department of Mobile Equipment was officially called foreman. Actually, there were, under him, four 'turn foreman' who were the immediate superiors of the workers. Unfortunately, this discrepancy between title and reality could not be detected from the organization charts. The researcher realized this only when he had interviewed these special cases. Two cases were eliminated from the data due to this confusion of terminology.

In this paper, unless otherwise specified, 'first-line supervisor' and 'foreman' will be used as synonyms. 'Supervisor' will be used to



cover both first- and second-line supervisors.

### The Sample

The sample used in this study was drawn from seven manufacturing industries. All of these industries were located in Lakeshore City - a city of medium size in Eastern Canada and one of the major manufacturing cities in the country. The spectrum of industries in this area ranges from service industries to steel manufacturers. But the heavy concentration is on the production of steel. Because approximately 50% of the steel produced in Canada is from Lakeshore, many secondary industries which use steel products are located in this area. We used the Lakeshore Industrial Index to provide a complete list of industries in the city. To minimize the possible effect of industrial type on supervisory style, it was decided to limit the study to manufacturing firms. Moreover, in order to get a sizable number of supervisors without covering too many organizations, only those which had a work force of 600 or more workers were selected from the Industrial Index and contacted. Seven of the fifteen contacted companies decided to participate.

In the following, we describe each of the participating companies. In order to protect their anonymity, we will assign a letter of the alphabet to each of them.

Company A is a highly mechanized can company which employed about 700 workers at the time this study was done. They make great amounts of metal containers to customer's orders. The Production and Engineering

Departments form the bulk of the plant. Each department is headed by a general foreman who works under the direction of the plant manager. The general foreman of production was in charge of three sections: central ends (ends of cans are made in this section), lithography, and shipping. Most of the workers in the lithography department are skilled workers. The men in the other sections are predominantly semi-skilled workers. There are three levels of authority in the plant. Group sizes range from 7 to 75 workers in a group.

Company B is one of the major steel companies in Canada with sophisticated steel making technology. In addition, it has its own by-product factory where natural gas is processed. Continuous processing technology is used in this factory. Company B also has its own foundries whose level of mechanization is not as advanced as in the other areas of production. However, the sizes of some of their castings are quite impressive. At the time this research was carried out, Company B had about 8,000 employees. The sizes of work groups ranged from 10 to 60 men in a group. In the production division, there were six levels of authority from president to first-line supervisors.

Company C is a farm equipment producer. There were about 1,500 employees working under seven levels of managers. Group sizes ranged from 7 to 55 workers. Manufacturing and assembling are the two major divisions. The parts are forged, pressed, and polished in the former division and assembled subsequently in the latter. The assembly-lines are different from those in an automobile plant. The parts are not moved by conveyor belts. Rather, they are moved on the ground from one

work station to another. Usually there are one or two partially finished products on a station waiting for final assembly.

Company D is a highly specialized wire product factory. About 600 men, in two plants, work to produce wire rope and wire fabrications. While the machinery is semi-automated in the rope plant, the wire weaving machines are old and less mechanized. In each plant there is a superintendent reporting to a plant manager who oversees both plants. The plant manager in turn reports to the Vice President - manufacturing. From top management (President/General Manager) to the bottom (foreman), there are six levels of authority. The sizes of work groups range from 6 to 18 men.

Company E is a highly mechanized company specializing in making nails and drawing wires. It is part of a big steel company but has its own budget and personnel. There were about 600 employees under four levels of management. They were organized into groups of different sizes. The largest group had 37 workers. The smallest had seven. The degree of mechanization in the wire mill and the nail mill are quite similar. However, the technology of the Heat Treat section, which is also under the supervision of the general foreman of the nail mill, seems to be more complex.

Company F is a factory specialized in manufacturing industrial and steel building products. The working processes are mechanized. But the set-up was relatively simple. Among the many lines of production, basically there are two major jobs: using dies of various sizes to form or press steel sheets into required configurations and patterns; using

different gauges to cut flat steel at required lengths. Their production is entirely geared to customers' orders. Since they are also erectors, required products have to be finished and transported to designated construction sites at specific times. Timing is therefore a crucial factor in this company. There were about 600 workers under five levels of managers. The sizes of work groups range from 10 to 22 workers.

Company G is a glass factory specializing in making bottles. The technological setting varies throughout the plant. The 'hot end', where the bottles are made, is almost entirely automated, except for periodic manual lubrication of the moulds. The 'cold end', packing departments, are manual. The painting department has short assembly lines. There are four levels of authority in Company G employing about 1,100 workers. The smallest work group had only six men under a foreman. The largest had 55.

From the above description of the companies, two points can be made:

1) All participating companies are manufacturing industries. In all but one (Company G), the workers can be classified as 'steel workers'. They either produce steel or use steel products to make something else. This similarity among participating industries provides us with a relative uniform research setting.

2) There are enough differences at group level in the selected companies to cover our independent variables: task complexity, group size, skill level, and autonomy of workers.

From the seven companies, 121 first-line and 36 second-line

supervisors were selected to compose our sample. Eventually 117 foremen and 35 general foremen were interviewed. The response rates are 96.7% and 97.2% respectively. The criteria of sampling were as follows:

1) Only the supervisors of production, maintenance, material handling, and shipping departments were selected.

According to Crozier, the working conditions, social milieu and mental climate of white collar workers are different from that of blue collar workers.<sup>1</sup> In order to exclude these factors from the situation, staff departments were therefore not our concern in this study.

2) When the total number of supervisors in a company was less than 30, all of these men were included in the sample. This was the case in Companies A, D, E, and F.

In those companies which had more than 30 supervisors, random samples were drawn from the major departments such as production, maintenance, and shipping. The total number of supervisors that could be drawn from a company was the result of negotiations. In order to cover as broad a cross-sectional sample as possible, the departments that would be covered were decided first, a simple random sample was then drawn from each selected department. This was the case in Companies B, C, and G. Since Company G only allowed a small number of supervisors (11) to participate, we have selected these 11 men from only three departments: production, packing, and printing. The following is a breakdown of our sample:

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<sup>1</sup>Michel Crozier, The World of Office Workers, trans. David Landau, Chicago: The University of Chicago Press, pp. 32-38, 1971.

Company	2nd-line supervisors	1st-line supervisors
A	3	13
B	12 <sup>a</sup>	28
C	7	20 <sup>b</sup>
D	3	15
E	5	23 <sup>c</sup>
F	4	8
G	1	10
7	35	117

Notes:

- (a) Originally 13 were selected
- (b) Originally 22 were selected
- (c) Originally 25 were selected

3) The selection of second-line supervisors were automatically determined. That is, if his subordinates (foreman) were selected, the general foreman of a department would be automatically included.

#### Characteristics of the sample:

Table III-1 presents the social and career characteristics of the two categories of supervisors in our sample. The following are the most salient characteristics of the sample:

1. Our sample is quite homogeneous in terms of sex, marital status, and country of birth. Although there were female workers in the production sections of the industries studied, there were no female supervisors. All but three first-line supervisors were married. An overwhelming majority of the supervisors were born in Canada, 76.3% and 80.0% for the two levels of supervisors respectively. There were a few who were of western or eastern European origin. However, we discovered that

TABLE III-1

## SOCIAL AND CAREER CHARACTERISTICS OF THE SAMPLE

	1st-line Supervisors			2nd-line Supervisors		
	RANGE	NO.	%	RANGE	NO.	%
Age	23-39	32	28.1	30-39	7	20.0
	40-49	42	36.8	40-49	13	37.7
	50-62	40	35.1	50-60	15	42.3
	Mean = 45.0			Mean = 46.9		
Sex	All male			All male		
Marital Status	Single	3	2.6	Single	0	0.0
	Married	111	97.4	Married	35	100.0
Country of birth	Canada	87	76.3	Canada	28	80.0
	U.S.A.	1	0.9			
	U.K.	18	15.8	U.K.	6	17.1
	W. Europe	1	0.9			
	E. Europe	6	5.3	E. Europe	1	2.6
Grade School	5 yrs	3	2.6	5 yrs	0	0.0
	6 yrs	2	1.8	6 yrs	1	2.9
	7 yrs	7	6.1	7 yrs	1	2.9
	8 yrs	100	87.2	8 yrs	33	94.3
	9 yrs	2	1.8			
	Mean = 7.8 yrs			Mean = 7.9 yrs		
High School	0 yr	20	17.5	0 yr	1	2.9
	1 yr	14	12.3	1 yr	3	8.6
	2 yrs	21	18.5	2 yrs	3	8.6
	3 yrs	17	14.9	3 yrs	5	14.3
	4 yrs	25	21.9	4 yrs	12	34.2
	5 yrs	17	14.9	5 yrs	11	31.4
	Mean = 3.1 yrs			Mean = 3.7 yrs		
Trade or Business School	0 yr	63	55.3	0 yr	21	49.9
	1 yr	13	11.4	1 yr	3	8.6
	2 yrs	9	7.9	2 yrs	7	20.0
	3 yrs	14	12.3	3 yrs	3	8.6
	4 yrs	12	10.5	4 yrs	1	2.9
	5 yrs	3	2.6			
College or University	0 yr	102	89.3	0 yr	25	71.4
	1 yr	6	5.3	2 yrs	3	8.6
	2 yrs	3	2.6	3 yrs	1	2.9
	3 yrs	1	0.9	4 yrs	4	11.3
	4 yrs	2	1.8	5 yrs	1	2.9
				6 yrs	1	2.9
Degrees	No degrees	109	95.6	No degrees	30	85.8
	B.Sc.	2	1.8	B.A./B.Sc.	4	11.3
	College graduate	3	2.6	M.B.A.	1	2.9
Yrs as general foreman				1-9	21	60.0
				10-31	14	40.0
				Mean = 9.45 yrs		
Yrs as foreman	1-11	68	59.6	0 yr	7	20.0
	12-34	46	40.4	1-10	19	54.3
				11-30	9	25.7
	Mean = 11.33			Mean = 9.46		
Yrs on present job	1-7	80	70.2	1-6	27	77.1
	8-31	34	29.8	7-23	8	22.9
	Mean = 6.86			Mean = 6.06		
Yrs worked for company	1-23	49	43.0	5-22	18	51.4
	24-47	65	57.0	23-41	17	48.6
	Mean = 22.5			Mean = 22.11		

they were brought into this country when they were very young. Thus the place of birth is more homogeneous than it looks.

Although cultural factors can determine organization behaviour to a certain extent, as demonstrated by Crozier and other social scientists,<sup>2</sup> we were not able, in this study, to investigate how supervisory behaviour is determined by cultural variables. However, because of the homogeneous nature of the sample, we can assess the differences of supervisory style more directly in terms of the structural and technological variables and not be concerned with cultural differences.

2. The average age of the second-line supervisors was 46.9. Although the range of their age was from 30 to 60, there were only two under 35. Only seven were in the age group of 30-39. The average age of the first-line supervisors was not much younger (45.0) than their superiors, although the bottom of the range was as young as 23.

3. While most of the general foremen have finished 12 or 13 year of schooling, a high school education did not seem to be a minimum requirement of the foremen. Only 14.9% of the foremen have graduated from high school. A little more than one-fifth (21.9%) of them finished grade twelve. 17.5% have never gone beyond grade school at all.

About half of the supervisors (44.7% for first-line and 50.1% for second-line supervisors respectively) have attended technical school. This probably explains why only a small fraction (14.9%) of foremen have completed high school education.

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<sup>2</sup>Michel Crozier, The Bureaucratic Phenomenon, Chicago: The University of Chicago Press, Part 4, 1964.



Employing university or college graduates was something new in the industries studied. 11.3% of the general foremen had a B.A. or B.Sc. degree. Among the foremen, there were 3 (2.6%) community college graduates. Many companies indicated that they were trying to hire more college graduates as potential foremen in order to improve the quality of their supervisory staff. However, on-the-job training and experience were still emphasized by the management.

4. Most of the supervisors were old-timers in their companies. The length of service averaged 23 years for the first-line supervisors, while that of the second-line supervisors averaged 22. More than two-fifths (40.4%) of the foremen have been foremen for 12 years or more. 25.7% of the second-line supervisors have climbed up to that level for 11 years or more. More than one-fourth of the general foremen have worked as first-line supervisors for more than ten years before they were promoted. This fact indicates clearly how heavily experience has been emphasized in industries.

### The Instrument

In Chapter I, we indicated that the focus of this study is the causes, rather than the consequences, of different supervisory styles. We have postulated that, given the desire of the supervisor to efficiently perform his role, he is faced with certain objective conditions. These are conceived of as the nature of the social structure and the technological environment of the work place which influence the styles of supervision he adopts. To test specific hypotheses about this relationship, we used

structured interviews to collect the data. Two questionnaires were developed and administered, one for each of the two categories of supervisors in our sample.

A complete copy of each questionnaire will be found in Appendix A and B. We describe how each variable was measured below.

Questionnaire I (foreman questionnaire): This questionnaire consisted of two parts: A) background information questions, and B) questions on the following variables:

- 1) Supervision
- 2) Perceived immediate superior's supervisory style
- 3) Complexity of the task of the group
- 4) Size of the group
- 5) Machine/man control - workers' 'freedom' of controlling the work process, and
- 6) Level of skills of the group

1) Supervision: The purpose of this part of the questionnaire was to measure the supervisory style as perceived by the first-line supervisors themselves. As discussed in the last chapter, supervisory style has been differentiated into four dimensions:

- a) Closeness: Ranging from CLOSE to GENERAL;
- b) Worker orientation: ranging from MORE WORKER-ORIENTED to LESS WORKER-ORIENTED;
- c) Production orientation: ranging from LESS PRODUCTION-ORIENTED to MORE PRODUCTION-ORIENTED;
- d) Time allocation: ranging from spending more time on the

SHOP FLOOR to spending more time IN THE OFFICE.

The instrument consistent of 18 questions, each providing for five alternative responses. The choices range from STRONGLY AGREE to STRONGLY DISAGREE to form a LIKERT-type scale.

a. Closeness; The instrument consisted of six questions to measure the 'closeness' dimension of supervision:

1. In general, to get the work done, it is necessary to give detailed and frequent instructions to your workers.
2. In general, to get the work done properly, it is necessary to keep a close eye on your workers.
3. A foreman should insist that the standard method of doing the job should be followed under all circumstances.
4. Workers should be left alone to do their work in their own way.
5. The members of your group are subject to only very broad standards of production.
6. As a foreman, you should discuss the policy or operating decisions with your workers.

The first three questions were meant to portray a close style. The scoring was: strongly agree, 5; agree, 4; uncertain, 3; disagree, 2; strongly disagree, 1. Questions 4-6 were meant to indicate the opposite. The scoring was 1 to 5 for the five alternative responses ranging from strongly agree to strongly disagree.

b. Worker orientation: This part of the questionnaire contained five questions to measure the "worker orientation" dimension of supervision. The questions were:

7. Looking after your men is the most important part of your job.
9. If a worker comes to you with his personal problems, you should

refer him to an expert instead of offering advice yourself.

10. You always 'go to bat' for your subordinates.
11. As a foreman, you should always take good care of the general welfare of your workers.
12. As a foreman, you have your hands full enough running the shop without having to bother with the general welfare of the workers.

Foremen who agree with questions 7, 10, and 11 are considered to be more worker-oriented and get higher scores. On the contrary, those who agree with questions 9 and 12 are considered to be less worker-oriented and get lower scores.

c. Production orientation: This dimension was operationalized by five items which were:

8. Keeping up production is the most important part of your job.
13. It is important to emphasize deadlines and targets of production and urge your workers to speed up.
14. To criticize and correct poor work is an important part of your job.
15. In general, the men work best when they are not under too much pressure.
16. As far as the production schedule is concerned, you always make proper arrangements, so that your workers do not feel the pressure of meeting deadlines.

The scoring for questions 8, 13, 14 was 5 for strongly agree and 1 for strongly disagree. The scoring for questions 15 and 16 was the opposite.

d. Time allocation: This dimension was operationalized by two items which were:

17. How many times a day on the average do you check to see how each worker is getting on.

18. Approximately, what proportion of your working time do you spend in your office and on the shop floor.

The five alternative responses for question 17 were once, twice, three to five times, six to ten times, and, more than ten times, scoring from 5 to 1. The five choices for question 18 were 1-10%, 11-20%, 21-40%, 41-70%, and over 70% for "in the office" and "on the shop floor" respectively. The scoring for the five choices was 1 to 5 for time spent in the office and 5 to 1 for time spent on the shop floor.

2) Perceived Superior's Supervisory Style: This variable was measured by five scales. In brief, the foremen were asked how did they think they were supervised by their superior, and how much resemblance there was between his supervisory style and that of their bosses. The questions were:

19. The goals of your group are set completely by those above you.
20. How much does the responsibility of setting the goals of your group fall on you?
21. How often does your immediate superior appear on the shop floor to check on your work group?
22. You are free to carry out your job in your own way.
23. Your method of supervising closely resembles that of your immediate superior.

Questions 19 and 20 were asked to find out how much say a foreman has, as he perceived it, in setting up the goals of his group. Question 21 was a measure of the frequency that a foreman and his group were checked by his superior. Question 22 probed the closeness a foreman was supervised. And, finally, question 23 tried to measure the resemblance of supervisory style, again as perceived by the first-line supervisors.

3) Complexity: This instrument consisted of six questions to measure the variable of task complexity. The questions were:

24. The work of your group varies  
a great deal, fairly much, to some degree, comparatively little, very little.
25. In comparison with the task of other groups in your department (or plant), the tasks of your group are technically  
very complex, somewhat more complex, about the same, somewhat less complex, much less complex.
27. Could you please describe how many different operations (or different kinds of work) there are that come under your supervision?
28. Would you please indicate the levels of skills required for each operation or work to be completed.
29. If your workers are organized into crews (or small teams, of groups), how many crews are there in your section? Please indicate how the crews (or each kind of crew) are organized.
30. How many of the crews do the same thing? \_\_\_\_\_  
How many of the crews do different things? \_\_\_\_\_

Questions 24 and 25 measured the complexity of the tasks of a work group as perceived by the foreman. Questions 27 and 30 measured the objective complexity of the group's task in terms of a) the number of operations that are under a foreman's supervision (Q. 27) and the level of skill required by each operation of work (Q. 28); b) the number of crews there are in a group (Q. 29) and the variety of things that crews do (Q. 30).

Job classification system was used to measure skill levels asked in Q. 28. A discussion of this measurement will be presented later in

this chapter.

4) Size of Group: The supervisors were simply asked how many workers were under their supervision (Q. 26).

5) Machine/man Control - Worker's 'freedom' of Controlling the Working Processes: This instrument consisted of three questions to measure how much control over their working processes most of the workers of a group have. The questions were:

31. To what extent can most of your workers make decisions about what tools to be used to get their work done?  
Could you please indicate by percentage?
32. To what extent can most of your workers make decisions on what material to be used to get their jobs done?  
Could you please indicate by percentage?
33. To what extent can most of your workers pace their own work?  
Could you please indicate by percentage?

These questions were clearly explained to the interviewees to get the exact information wanted. By comparing the answers of the foremen in the same department, the data were proved to be very reliable. For all three questions, the scoring was: 0-20%, 1; 21-40%, 2; 41-60%, 3; 61-80%, 4; 81-100%, 5.

6) Skill Level of Workers: There was only one question in this part of the questionnaire:

34. If there is a skill scale in your Company, would you please tell me how many workers there are at each level of skill in your group? If there is not, could you please rank them in your own opinion, and indicate the number of workers in each rank?

There was no skill scale per se available in any of the seven firms involved in this study. What was available were Job Classification Systems

or Job Grouping Systems. These systems were basically wage scales. A number of factors are involved in deciding the level of wage of a certain job. Some of the factors are not relevant to skills of a worker at all, for example, hazard. However, most of these factors have something to do with skills. For example, the factors such as pre-employment training, employment training, mental skill, manual skill, all indicate the skill level of a worker. After extensive discussion with an engineer of job classification in one of the industries participating in our project, the researcher was convinced that even if the non-skill related factors were eliminated, the overall picture of job classification could remain very much the same. Therefore, job classification systems could be safely used as skill scales. The only problem which had to be overcome was that all industries do not use the same classification system. Fortunately, five out of seven firms covered by this study used CWS (Co-operative Wage Study for Job Description, Classification, and Wage Administration). And the systems used by the other two companies were easily translated into a comparable CWS classification.

The following formula was used to get the Index Score of the skill level of a group:

$$[(JC_1 \cdot n_1) + (JC_2 \cdot n_2) \dots + (JC_k \cdot n_k)] \div N = \text{Index Score}$$

where JC = Job Class

$n$  = the number of workers in each job class of a group

$N$  = total number of workers in a group

For example, if a group has 20 workers and the distribution of the workers'



job classes is as follows:

<u>Job Class</u>	<u>No. of Workers</u>
1	2
2	3
3	4
4	5
5	6
	<hr/> N = 20

the Index Score of the skill level of this group will be:

$$[(1 \times 2) + (2 \times 3) + (3 \times 4) + (4 \times 5) + (5 \times 6)] \div 20 = 3.5$$

Questionnaire II: This questionnaire was designed to measure the supervisory styles of second-line supervisors. The dimensionalization of supervisors and questions which operationalized those dimensions were the same, with only slight differences in wording, as they were for the first-line supervisors (questions 1-18 in Questionnaire I).

#### Reliability and Validity of the Instrument

In a survey research, it is conventional to consider if the questions asked are reliable and valid. By using the coefficient alpha formula,<sup>3</sup> the reliability coefficients of the four dimensions were obtained: closeness, .68; worker orientation, .68; production orientation, .66; time allocation, .60. For basic research, these reliability coefficients seem to be fairly acceptable.<sup>4</sup>

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<sup>3</sup>Coefficient alpha is determined from the intercorrelations of the items on the test. See Jum C. Nunnally, Psychometric Theory, McGraw-hill, pp. 192-196, 1967.

<sup>4</sup>Nunnally argues that a reliability of .60 or .50 is acceptable for basic research. However, if measures have important impacts on lives

One way of testing the validity of a measurement is to use factor analysis. If a factor analysis reveals that the items cluster together as intended by the design, we would regard that clustering as an indication of the validity of the measurement. In factor analysis, when a group of items cluster together they are assumed to represent a common underlying factor or dimension. In the following, the results of the factor analysis conducted to test the validity of our instrument are reported.

Using principal factor analysis with "iteration refactoring," four oblique factors were identified. Since there are four factors, each item has four factor loadings.<sup>5</sup> By picking the highest loading of each item, the 19 items fall into four mutually exclusive groupings. Items that have factor loading of .30 or greater on a factor were arbitrarily selected to represent that factor. The loading of items 4, 5, 7, 9, 16, and 17 did not meet this criterion and were thus discarded in the analysis of the data presented in Chapters IV and V. The four factors can be easily labelled by using the names of the dimensions originally developed: closeness, worker orientation, production orientation, and time allocation. Table III-2 presents the comparison between the original dimensionalization and the result of the factor analysis. As can be seen from the Table, with the exception of item 6 which was shifted from the

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of people, a reliability of .95 should be considered the desirable standard. Op. cit., pp. 226-498.

<sup>5</sup>The factor loadings are presented in Appendix E.

TABLE III-2 COMPARISON BETWEEN ORIGINAL DIMENSIONALIZATION AND THE RESULT OF FACTOR ANALYSIS

<u>Dimension 1 CLOSENES</u>		
	<u>Items of Factors</u>	<u>Factor Loadings</u>
1. Give detailed instructions	1	.72
2. Keep a close eye on workers	2	.59
3. Insist on using standard methods	3	.30
4. Leave workers alone		(.15) <sup>+</sup>
5. Broad standards of production		(.22) <sup>+</sup>
(6. Discuss policy with workers)		-
<u>Dimension 2 WORKER ORIENTATION</u>		
6. Discuss policy with workers	6	.30
7. Looking after men is most important part of job		(.27) <sup>+</sup>
9. Advising workers for personal problems		(.16) <sup>+</sup>
10. Go to bat for workers	10	.52
11. Take care of men's general welfare	11	.65
12. Foremen are too busy to take care of men's general welfare	12	-.59
<u>Dimension 3 PRODUCTION ORIENTATION</u>		
8. Keeping up production is most important part of job	8	.52
13. Emphasizing deadlines and targets of production	13	.54
14. Criticize poor work is an important part of job	14	.42
15. Men work best when under little pressure	15	-.30
16. Relieve workers from pressure of deadlines		(.21) <sup>+</sup>
<u>Dimension 4 TIME ALLOCATION</u>		
17. Number of times a day checking the workers		(.07)
18. Proportion of time spent in office	18	.64
19. Proportion of time spent on the shop floor	19	.79

+ Factor loadings in parentheses are those which did not meet the criterion (.30) and were discarded in further analysis.

dimension of closeness to that of worker orientation, all items are where they were.

Since the instrument originally developed to measure the dimensions of supervisory style is somewhat refined by the factor analysis, new scales should be formed.

By summing the individual scores of the items of each dimension derived from the factor analysis, the scores for each of the four dimensions are obtained. Specifically,

$$\text{CLOSENESS} = \text{item 1} + \text{item 2} + \text{item 3}$$

$$\text{WORKER ORIENTATION} = \text{item 6} + \text{item 10} + \text{item 11} + \text{item 12}$$

$$\text{PRODUCTION ORIENTATION} = \text{item 8} + \text{item 13} + \text{item 14} + \text{item 15}$$

$$\text{TIME ALLOCATION} = \text{item 18} + \text{item 19}$$

Throughout the analysis of the data, these new scales of the dimensions of supervisory style were used.<sup>6</sup>

### Chronological Order of Research Procedures

#### 1. Contacting the Top Management:

As indicated previously, the sample was obtained from seven manufacturing industries. We now describe in greater detail how the seven companies were contacted and their co-operation obtained.

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<sup>6</sup>Composite factor scales using standardized variables were also formed. No substantial differences were found between the results produced by scales so developed and those produced by the scales eventually used in the analysis of the data.

To obtain sponsorship of the industries, a letter (Appendix C) was sent to the top managements of 15 manufacturing industries in Lakeshore City. The researcher then visited 11 of them who showed initial interest in the project, in order to explain the purpose and procedures of the study. In those meetings, a two page outline of the project (Appendix D) was used as a basis of discussion. This outline proved to be quite persuasive and had saved a great amount of verbal explanation. Among the 11 companies visited, two refused to participate. Two others were considered unsuitable: one was then undergoing an extensive re-organization process; the other agreed to distribute the questionnaire for us, but declined to have their supervisors personally interviewed.

## 2. Plant Tours:

The researcher had an extensive plant tour in each of the seven factories, to get a good understanding of the layout of the factories and the processes of production. These tours not only facilitated the interviews, but also provided insights for interpreting the data.

## 3. Project Explained to the Department Heads:

In five of the participating industries, meetings with the Department Heads were held. In these meetings the researcher explained the purpose and procedures of the study. Three points were invariably emphasized: (1) The company did not approach the researcher to do the study; rather, it was the researcher who initiated the request; (2) Confidentiality of information was assured; (3) Possible contributions the study could make.

The Department Heads were requested to communicate this information

to their subordinates. In addition, copies of each of the two cover letters of the questionnaires which described the research briefly and carried the above three messages were sent in advance to the supervisors selected, so that they would be psychologically prepared for the interviews.

A possible danger of this procedure is that the interviewees might be sensitized by knowing some information about the research beforehand. However, this did not seem to happen. There are sufficient variations in the data for testing the hypotheses. The researcher was unable to detect any indications that any of the respondents had made any effort to give the answer which he thought he was expected to give. In addition, the researcher has not found any indication that supervisors of the same department were trying to tell the same story. Possibly this is due to the fact that the description of the research was broad and vague enough (the supervisors were simply told that the purpose of the study "is to find out the factors that account for the differences in supervisory styles in industries") not to reveal the content of the questionnaires. Consequently, they could not anticipate exactly what sort of questions they would be asked.

Actually, the main purpose of the cover letters was to minimize the supervisors' suspicion that the researcher might be a spy of the top management by repeatedly emphasizing the confidentiality of information. Judging from the smooth going of the interviews, this purpose was successfully accomplished by sending the cover letters to the interviewees in advance.

#### 4. The Interviews:

The supervisors met the researcher at a designated time and place. Each interview lasted about one hour. Questionnaire II and part of Questionnaire I (Questions 1-25 and the background information questions) were self-administered.

Since the response alternatives of each question were limited, they may not cover all the opinions of the respondents. They therefore were encouraged to write down any comments or qualifications they had after they had checked the answers which best fitted their opinion. These comments and qualifications will be used as supplementary material in interpreting the data.

Questions 26-34 of Questionnaire I were open-ended questions. These questions were on the two technological variables: complexity and worker's freedom of controlling their working processes. They were explained clearly to the respondents to get the exact information wanted. For example, Question 29 reads:

"If your workers are organized into crews (or small teams, or groups), how many crews are there in your section? Please indicate how the crews (or each kind of crew) are organized."

Our definition of crew is that a group of workers work together to get a job done. An operator and his helper(s) form a crew. Two lift truck drivers working individually are not a crew. The term crew is used in different ways in industries. For example, a bunch of workers on one shift are sometimes called a crew. Actually, there could be several crews in our sense. In order to get the exact information needed, the interviewer had to explain our definition to the respondents.

A typical problem may be worth mentioning here. All the industries in our sample worked on shifts. The first-line supervisors were rotated as well as their workers. Usually, the number of men in a group on evening or night shift was smaller. In most cases, the general foreman worked only on day shift. When asked whether they would supervise differently on 'off shifts', many foremen reported that they would, generally due to two reasons: a) the atmosphere at night tends to be somewhat slack, so that they have to put a closer eye on their workers; b) safety reasons. However, to what extent do these differences between day and night shifts affect a foreman's supervisory style is hard to determine. To minimize the effect of this variable, the respondents were encouraged to report the way they supervise on day shift.

##### 5. Methods of Analysis

The hypotheses were tested by the degree of the relationship between two variables as measured by appropriate statistical technique. As we proceeded more deeply into the analysis of our data, it became increasingly apparent that the determinants of supervisory style were very complex. Simple statistical manipulation of our data did not prove to be powerful enough to demonstrate the relationships between the dependent and independent variables. As a consequence, we have had to rely a great deal on multiple correlation techniques in our analysis.<sup>7</sup>

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<sup>7</sup>In regard to the product-moment correlation, one of the basic assumptions is that the measurement used should be interval scales. However, there is empirical evidence that ordinal scales, as most of the scales used in the present study, can be treated as if they conform to interval scales. A more recent one is Labovitz's study. He assigned



The logic we used was to impose minimal assumption on the data in order to demonstrate the hypothesized relationships. Whenever more powerful statistical technique were used, greater care has been taken not to violate the necessary assumptions.

### Summary

In this chapter, the procedures under which the research was undertaken and the methods used for collecting and analyzing the data were reported. The sample involved 114 first-line supervisors in seven manufacturing industries. All of these supervisors were male and a great majority of them were married. Over three-quarters of these men were Canadian born with an average education of about eleven years. More than two-fifths of them have been foremen for 12 years or more. With this picture in mind, we shall proceed to analyze the data in the following chapters.

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both random and non-random numbers to rank orders. Twenty scoring systems were used, of which 18 were randomly generated by a computer. These systems resulted in negligible error when comparing any assigned scoring system with any selected 'true' scoring system. See Sanford Labovitz, "The Assignments of Numbers to Rank Order Categories," American Sociological Review, 35:515-524, 1970. Also see Sanford Labovitz, "Some Observations on Measurement and Statistics", Social Forces, 46:2:151-160, 1967; E.E. Borgatta, "My Student, the Purist: a Lament," Sociological Quarterly, 9:1:29-34, 1968.

## Chapter IV

### DATA ANALYSIS - Part I

In this and the following chapters, we shall report the findings of our analysis of the data as they bear on the hypotheses of this study. Our strategy of analysis was to begin with a general examination of our data, which are from 114 usable questionnaires of the 117 collected, and proceed with successive stages of more detailed analysis. In this chapter, the findings of the analysis of the relationships between each of the independent variables and the dependent variables - the four dimensions of supervisory style - are reported.

#### Size of the group

Based on the concept of the span of control, it has been hypothesized that the larger the group, the higher the probability that the supervisor (1) will be less production-oriented, (2) will be more worker-oriented, (3) will control his workers less closely, and (4) will spend more time on office work. As may be seen from Tables IV-1 and IV-2, there is variation in the size of the work groups and the scores of each dimension of supervisory style.

We have argued that, given that time and energy are finite, a supervisor, when his group is large, is less likely to control his work group closely and, to get the cooperation of his workers to achieve the

TABLE IV-1 DISTRIBUTION OF SIZE OF GROUP

SIZE OF GROUP	5-15	16-25	26-35	36-45	46-55	56-65	66-75	Total
N	37	39	16	11	7	1	1	114
%	32.4	34.2	14.0	9.6	7.9	.9	.9	100.0

TABLE IV-2 DISTRIBUTION OF THE SCORES OF DIMENSIONS OF SUPERVISION

SCORE	CLOSENESS		WORKER ORIENT.		PROD. ORIENT.		TIME ALLOCATION		
	n	%	n	%	n	%	SCORE	n	%
1-5	21	18.5	0	0.0	0	0.0	1-3	44	38.6
6-10	72	63.0	14	12.2	12	10.6	4-6	56	49.1
11-15	21	18.5	60	52.6	89	78.1	7-10	14	12.3
16-20	0	0.0	40	35.1	13	11.3			
RANGE	4	- 13	10	- 20	8	- 17		2	- 8
MEAN	8.16		15.88		12.22			4.30	
S.D.	2.56		2.29		1.55			1.65	
N	114		114		114			114	

production goal, he possibly has to adopt a human relations approach rather than a production orientation. Also, since the group is large, he would have more planning and paper work to do. Thus, we would expect that group size is positively correlated with worker orientation and time allocation; and negatively correlated with production orientation and closeness.

Table IV-3 shows that the direct association between group size

TABLE IV-3 CORRELATIONS BETWEEN GROUP SIZE AND  
DIMENSIONS OF SUPERVISORY STYLE

	PROD. ORIEN.	WORKER ORIEN.	CLOSENESS	TIME ALLOCATION
GROUP SIZE	.12	-.07	-.02	.16

and the four dimensions of supervisory style is slight. As curvilinear-ity of these variables is indicated by a scattergram, it may be useful to undertake separate analysis for foremen of small and large groups. Using the median number of workers (20) in a group as cutting point, the sample was dichotomized into two sub-samples. Table IV-4 presents the slopes and correlations between the sub-samples of group size and the

TABLE IV-4 SLOPES AND CORRELATIONS BETWEEN SUPERVISORY  
STYLE AND SMALL AND LARGE GROUPS

	PROD. ORIEN.		WORKER ORIEN.		CLOSENESS		TIME ALLOCATION	
	b	r	b	r	b	r	b	r
SMALL GROUP (5-20;N=59)	-.03	-.09	.05	.12	-.02	-.04	.00	.01
LARGE GROUP (21-75;N=55)	-.01	-.11	.04	-.03	0.01	0.15	0.09	-.12

dependent variables. The level of significance of the correlations in this chapter and Chapter V are indicated by asterisks. It is fully recognized that the sample used in this study is not a probability sample in the strict sense. Thus, the test of significance is not entirely appropriate. However, we find it is useful to use the level of significance

of the correlations as a criterion for comparison. They are reported just for this limited purpose.

The slopes and zero order correlations presented in the table above still show that group size and supervisory style are not related, although the magnitudes of the correlations between large groups size and the four dimensions of supervisory style are slightly larger. However, since curvilinearity is indicated by the data, we should explore more subsamples according to group size. We further divided the sample into three categories. In the first category are small groups including those in the lowest quartile (5-12 workers in each group). In the second category are medium groups including those in the middle quartiles (13-34 workers in each). In the third category are large groups including those in the highest quartile (35-75 workers in each). Within each category, group size was correlated with the dependent variables. The results are presented in Table IV-5.

TABLE IV-5 SLOPES AND CORRELATIONS BETWEEN THREE GROUP SIZES AND THE DIMENSIONS OF SUPERVISORY STYLE

	PROD. ORIEN.		WORKER ORIEN.		CLOSENESS		TIME ALLOCATION	
	b	r	b	r	b	r	b	r
SMALL GROUP (5-12;N=28)	.24	.27	.34	.40*	-.07	-.05	-.06	-.09
MEDIUM GROUP (13-34;N=57)	.00	.03	.05	.10	.00	.02	.02	.08
LARGE GROUP (35-75;N=39)	-.01	-.18	.00	.10	.05	.32*	.03	.26

\*p < .05

From the table above, we find that, as indicated by both the slope and the correlation coefficient, small group size is moderately closely related with worker orientation, indicating that when the group is small, the foreman tends to be more attentive to the workers' needs and more flexible in controlling them. We also find that there is a fairly close correlation between large groups size and the dimension of closeness, indicating foremen of large groups tend to supervise their men more closely. However, as it is indicated by the slope, this relationship does not seem to exist. Medium group size does not appear to have an effect on any of the four dimensions of supervisory style.

In summary, although the data indicated that there are stronger association between small group size (5-12) and worker orientation, and between large group size (35-75) and closeness, in general, group size does not seem to have a substantial influence on supervisory style.

Based on the theory of the span of control, we have hypothesized that a humanistic supervisory style tends to be prevalent in large groups. Our findings, in general, do not support our hypothesis. The exception is the relationship between small group size and worker orientation, which, in a limited sense, is in line with our hypothesis. The following are some explanations for these findings:

(1) As it has been stated in the theoretical framework, the theory of span of control is established on a zero-sum basis. That is, a supervisor has only so much time and energy at his disposal. The more time and energy he uses on one aspect of his job, or on one section of his

men, the less time and energy he uses on the rest. When a group is large, it is too time-consuming to control every worker closely. While this reasoning is sound in general, the "largeness" of a group that a supervisor can closely control may vary with the nature of the subordinates' jobs, the hierarchy level of the group, the competence of the supervisor, and so on. The more complex the subordinates' jobs, the smaller the span of control tends to be.<sup>1</sup> Top managers who have non-supervising responsibilities usually have few subordinates. First-line supervisors who are mainly engaged in overseeing the work of their subordinates are more likely to have large groups.<sup>2</sup> The more competent a supervisor is, the more employees he would be able to control.<sup>3</sup>

Now let us check our data against these variables. Since we do not have a measurement of the competence of the foremen in our sample, we can not discuss this factor. We will leave the factor of complexity until we discuss our findings of the hypothesis about the relationship between complexity and supervisory style. What we shall talk about is the span of control at different hierarchic levels. Although the range

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<sup>1</sup>F.L. Richardson and Charles R. Walker, Human Relations in an Expanding Company, New Haven: Labour and Management Center, Yale University, p. 27, 1948; H. Miles, A.D. Eyre and H.P. Bennett, "A Investigation in a Cabinet Factory," Journal of National Institute of Industrial Psychology, p. 233, 1923; G.D. Bell, "Determinants of Span of Control," American Journal of Sociology, 73:100-109, 1967.

<sup>2</sup>Peter Blau and W.R. Scott, Formal Organizations: A Comparative Approach, Chandler Publishing Company, p. 167, 1962.

<sup>3</sup>Allen Janger, "Analyzing the Span of Control," Management Record, 22:7-10, 1960.

of five to seven has been repeatedly cited as an ideal size for administrators' span of control,<sup>4</sup> that of the first-line supervisors in industries is much larger.<sup>5</sup> The average size of group in our sample is 23.1. More than half (53.7%) of the groups are median size (20 members) or smaller. 12.5% of the groups had forty or more workers. We have reported that while foremen of small groups (5-12 men) tend to be more worker-oriented, those of large groups (35-75) tend to supervise more closely. These findings indicate that between 12 and 35 there is a threshold beyond which supervision tends to be more rigid and close. One possible explanation is that in a large group, coordination between members or subgroups is more important and difficult. Consequently, the foreman has to supervise his workers closely in order to achieve smooth coordination. Similarly, Wedderburn and Crompton indicated that there is a higher degree of bureaucratization which allows lesser degree of personal flexible control and the granting of discretion to the operators.<sup>6</sup>

However, the more closely a foreman attends to his subordinates, the more time and energy he will have to spend with each worker. Following the zero-sum assumption, we would not expect to find close supervision under these circumstances. These two lines of reasoning seem to be

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<sup>4</sup>Blau and Scott, op. cit., pp. 167-168.

<sup>5</sup>J. Woodward, Industrial Organization: Theory and Practice, London: Oxford Press, p. 69, Table 4, 1965.

<sup>6</sup>D. Wedderburn and R. Crompton, Workers' Attitudes and Technology, Cambridge University Press, p. 131, 1972.



contradictory to each other. One possible explanation for this contradiction may stem from the relationship between rule usage and closeness of supervision.

Previous research indicates that one of the means by which administrators attempt to control their subordinates is through the utilization of rules and regulations.<sup>7</sup> Blau reported the use of statistical records as an indirect control mechanism in his Dynamics of Bureaucracy.<sup>8</sup> If management utilizes rules or other impersonal control mechanisms as a substitute for personally supervising their subordinates, then their control efforts would not be as time-consuming as would be their attempts at direct supervision. Therefore, close supervision is possible in a large group.

Theoretically, the above discussion is meaningful. However, it has to be taken with care, because statistically the differences among correlation coefficients in subsamples can occur due to various reasons, such as the differences in the amount of variation in the independent variable, or the way the sample is divided. Thus, the  $r$ 's may differ even though the slopes do not.<sup>9</sup> As shown in Table IV-5, the unstandardized

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<sup>7</sup>G. Strauss and L.R. Sayles, Personnel, Prentice-Hall, Inc., p. 379, 1963.

<sup>8</sup>Peter Blau, The Dynamics of Bureaucracy, Chicago: University of Chicago Press, pp. 33-48, 1955.

<sup>9</sup>Hurbert M. Blalock, Jr., Social Statistics, (2nd ed.), New York: McGraw-Hill, pp. 383-384, 1972.

slopes indicate that there is little relationship between closeness and the group sizes, although the  $r$ 's indicate that closeness of supervision is moderately influenced by large group size. Whether, in fact, the degree of closeness a foreman supervises his workers is influenced by the size of the group may be further explored by future studies with larger samples and different measurement of closeness.

(2) We shall try to explain the positive relationship between small group size and worker orientation. Although it is easier for a foreman to check each of his workers closely in a small group, intimate relationships tend to develop between a supervisor and his workers in small groups. Therefore, it is reasonable to expect that supervisors of small groups tend to be more worker-oriented than production-oriented. Although the other dimensions are only slightly correlated with small group size (Table IV-5), the trend that humanistic supervision is more likely to be found in small groups appears to be clear.

(3) The physical distance separating the members of a group is relevant in this context. If the members of a group scatter over a vast space, close supervision is impossible, even if the group is small. By observation, most of the groups in our sample, however, were accommodated in one room where the workers performed their duties under the eyes of the supervisors most of the time. There were a few groups whose members were organized into crews and were located at various places in the plant. But all those groups were either maintenance or utilities units. The skill levels of those groups were considerably higher than that of the

production groups.<sup>10</sup> As we shall demonstrate later, workers in those levels of skill usually do not require bureaucratic supervision.

#### RELATIONSHIP WITH SUPERIOR:

In this section, we shall analyze the data pertaining to hypothesis 2: supervisors who are under humanistic supervision tend to (1) be less production-oriented; (2) be more worker-oriented; (3) control their workers less closely; and (4) spend more time on office work. Those who are under bureaucratic supervision tend to (1) be more production-oriented; (2) less worker-oriented; (3) control their workers more closely; and (4) spend more time on the shop floor. Table IV-6 presents

TABLE IV-6 DISTRIBUTION OF THE SCORES OF THE FOREMEN'S PERCEIVED SUPERIOR'S SUPERVISORY STYLE

	TOTAL				
PSSS SCORE	7 - 10	11 - 15	16 - 20	21 - 24	7 - 24
N	3	20	76	15	114
%	2.7	17.5	66.6	13.2	100.0

Mean = 17.0

Median = 17.4

the distribution of the scores of the supervisors' perceived superior's supervisory style (PSSS). The hypothesis was tested by using product-moment correlation coefficient. Table IV-7 shows the results representing

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<sup>10</sup> Average Index score of the skill level of the production departments and non-production departments are 8.7 and 13.2 respectively.

TABLE IV-7 CORRELATIONS BETWEEN PERCEIVED SUPERIOR'S  
SUPERVISORY STYLE AND DIMENSIONS OF  
SUPERVISION

	PROD. ORIEN.	WORKER ORIEN.	CLOSENESS	TIME ALLOCATION
PSSS	.03	-.01	-.23***	.23***

\*\*\*p < .001

the relationships between PSSS and the four dimensions of supervisory style.

According to our hypothesis, we expected that when a foreman receives high PSSS score, he would also receive high scores in the dimensions of worker orientation and time allocation, but low scores in the closeness and production orientation. As shown in Table IV-7, the data partially supported the hypothesis. While production orientation and worker orientation are not affected by a foreman's perception of his superior's supervisory style, the extent he controls his workers and the way he allocates his time are.

However, an obvious question still remains. That is, there could be a discrepancy between perception and fact. In other words, the way the foremen think they are supervised is not necessarily the way they are actually supervised. In order to eliminate this discrepancy, the hypothesis is further tested in a different way which is presented in the following paragraphs.

As we recall, the supervisory style of the foremen was measured by 13 items of our questionnaire. Their immediate superiors (general

foremen in title) were also asked to answer the same 13 questions (the wording of some of these questions is slightly different). By correlating the two sets of scores obtained from their answers to the 13 questions, we would be able to find out the degree of similarity of the supervisory styles at the two levels. Where a general foreman had two or more foremen under his supervision, these foremen's scores on each item were averaged to obtain a single score for each item, and then correlated with their general foremen's scores. Excepting for seven foremen whose superiors were not interviewed, the remaining 107 in the sample were under the supervision of 29 general foremen. We therefore have 29 correlation coefficients. Table IV-8 presents the matrix. The departments which the general foremen headed and the number of foremen interviewed in that department are also indicated in the table.

By examining the matrix, we can see in all but one of the 29 superior-subordinate groups the relationships are positive. The correlation coefficients range from  $-.02$  to  $+.77$ . Fifteen of them are "statistically significant." These fifteen superior-subordinate groups cover 64 out of 107 foremen. In other words, 59.8% of the first-line supervisors' self-reported styles are "significantly" similar with that of their immediate superior.

The same data were analyzed further to find out the similarity of supervisory styles of supervisors at the two levels. The supervision scores of 13 items of each foreman were matched with that of his immediate superior. In this match, a general foreman's scores were of course repeated as many times as the number of subordinate foremen he had. By

TABLE IV-8 CORRELATIONS BETWEEN THE SUPERVISION SCORES OF  
THE 2ND-LINE SUPERVISORS AND THE AVERAGE SUPER-  
VISION SCORES OF THEIR SUBORDINATE FOREMEN

DEPARTMENT	NUMBER OF FOREMEN	r	LEVEL OF SIGNIFICANCE
1. Production Dept.	7	.46	.030
2. Engineering Dept.	6	.44	.037
3. Hot mill	3	.21	.198
4. Central maintenance	1	.40	.050
5. Coke plant	4	.75	.001
6. Utilities	2	.28	.146
7. Steel making	4	.30	.082
8. Material handling	2	.35	.062
9. Steel casting	3	.54	.012
10. Cold Mill - Tin plate	7	.08	.300
11. Hot mill - Electrical	2	.50	.017
12. Press room	2	.39	.059
13. Central machine	3	.15	.306
14. Shipping	3	.65	.001
15. Material movement	3	.14	.302
16. Assembly	3	.25	.143
17. Tractor	4	.47	.037
18. Central maintenance	8	.47	.017
19. Wire rope	4	-.02	.435
20. Shipping/Receiving	2	.44	.026
21. Maintenance	3	.38	.084
22. Wire mill	7	.15	.298
23. Nail mill	7	.62	.002
24. Production planning	1	.15	.289
25. Mechanical	5	.77	.001
26. Metallurgical	1	.24	.148
27. Operations traffic	1	.11	.340
28. Production	6	.28	.141
29. Production	3	.63	.003
	107	$\bar{r} = .42$	

doing this, we got 13 x 107 pairs of scores. The number of agreements was then counted. By "agreement", it meant that when a general foreman and any of his subordinates both agreed or disagreed on an item or both answered "uncertain" to a question. If one agreed/disagreed, the other strongly agreed/disagreed on an item, it was considered as an "agreement," too. The higher the percentage of agreements, the more similar their supervisory styles would be. Table IV-9 shows the percentages of agreements on the 13 items.

TABLE IV-9 PERCENTAGES OF AGREEMENTS BETWEEN 1ST- AND  
2ND-LINE SUPERVISORS ON 13 ITEMS OF  
SUPERVISORY STYLE

<u>ITEM</u>	<u>% OF AGREEMENTS</u>
1. Detailed instructions	57.9
2. Keep a close eye on subordinates	43.0
3. Insists on standard methods	52.3
6. Discuss policy with workers	82.2
8. Keeping up with prod. is most important part of job	44.9
10. Go to bat for subordinates	47.7
11. Take care of general welfare of subordinates	88.8
12. Foremen (general foremen) are too busy to take care of general welfare of subordinates	86.0
13. Emphasizing dead-lines	72.9
14. Criticizing poor work	81.3
15. Men work best when under little pressure	57.9
18. Proportion of time spent on office work	59.8
19. Proportion of time spent on the shop floor	65.6
AVERAGE % 64.6	

The detailed examination of the data pertaining to this hypothesis revealed again that the supervisory styles of about 65% of the foremen are similar to that of their immediate superior. Although there is a probability of 33% that they agreed by chance, most of the proportions

of agreement shown in Table IV-9, as we can see, are well above this level of chance. Since the results of these tests, comparing with that of the previous test, are consistent, it seems reasonable to conclude that the hypothesis of the transmittal of supervisory style is supported by our data. In other words, the supervisory style of the foremen are considerably affected by that of their immediate superiors. Those who are under humanistic supervision tend to adopt humanistic style of supervision; those who are bureaucratically supervised are more likely to treat their workers in the same way.<sup>11</sup>

Furthermore, the consistency of the results produced by different tests of the hypothesis evidently indicate a high degree of similarity between the self-reported supervisory styles of the general foremen and their styles as perceived by their subordinates. Since the respondents did not know beforehand what sort of questions they were going to be asked and how we were going to use the data, there is no reason to suspect there could be any deliberate manipulation on their part in answering the questions. The consistency between tests further indicate that our interpretation is valid.

Finally, some explanation is at hand for the age group with a negative correlation ( $r = -.02$ ; see Table IV-8). This group was in Company D. As we may recall from the last chapter, Company D had two plants in Lake-

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<sup>11</sup>P. Blau reasoned that the orientation of alternate hierarchical levels would be similar, and those of adjacent levels, different. But he admitted that his conclusion was highly speculative. See Blau and Scott, *op. cit.*, pp. 162-163.



shore City. There was a superintendent in charge of each plant. Plant No. 1, where the group in question was working, had five departments: wire rope, perforating, shipping, inspection, and maintenance. Each department had two levels of supervisors. The supervisors of the wire rope department are the groups with which we are concerned here. Possibly because wire rope was the largest department in the plant, traditionally the superintendent supervised the production of this department more or less directly. The status of the second-line supervisor of this department was therefore somewhat vague, and his authority, weak. Even the titles of the second-line supervisors indicate this situation. While the head of all other departments were called "general foreman", that of the wire rope department was officially called "senior foreman." Keeping this piece of information in mind, one might not be at all surprised to find that this supervisor did not have much influence on his subordinates. Unfortunately, the researcher did not have a chance to interview the superintendent of that plant, so that there is no way of knowing the degree of similarity between his supervisory style and that of the foremen of the wire rope department.

In summary, by using different tests, the hypothesis that supervisory styles are 'transferred' from higher ranks to their subordinates appeared to be supported by the data. In other words, there is a tendency that the way a foreman is treated by his superior affects his way of supervising the workers. This finding is consistent with that of several previous studies.

The existence of the phenomenon of the transmittal of supervisory

style has attracted considerable attention from various researchers.<sup>12</sup> For example, Fleishman and his associates, studying a group of second-line supervisors, found that a superior who is considerate (close to humanistic supervision in our terms) tended to have foremen supervising their men in a similar way. The same was true for those who were oriented toward initiating structure (close to bureaucratic supervision in our term). Superiors who scored high on a certain dimension of supervision tended to have foremen with similar attitudes and behaviour.<sup>13</sup>

Leavitt observed some time ago: "To a greater or lesser extent, any assigned job becomes... two jobs: one job is to carry out the assignment, the other (but not always the secondary) job is to please the superior."<sup>14</sup> Our finding has supplied empirical evidence for this astute observation. As we have stated in the theoretical framework, authority is unequally distributed in organizations. The occupant of a higher rank position has more authority over his subordinates. He

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<sup>12</sup>D. Katz, N. Maccoby, N.C. Morse, Productivity, Supervision and Morale in an Office Situation, Detroit: The Darel Press, 1950; D. Katz, G. Gurin, and L.G. Floor, Productivity, Supervision, and Morale among Railroad Workers, Franklin Dekleine Co., 1951; R.H. Guest, Organizational Change and the Successful Leader, unpublished Doctoral Dissertation, Columbia University, 1960, cited by A. Etzioni in A Comparative Analysis of Complex Organizations, The Free Press, p. 309, 1961.

<sup>13</sup>E.A. Fleishman, E.F. Harris and H.E. Burt, Leadership and Supervision in Industry, Ohio State Business Education Reserve Monography, 1955.

<sup>14</sup>Harold Leavitt, Managerial Psychology, The University of Chicago Press, pp. 367-368, 1964.

has the power of reward and punishment. In order to satisfy their needs, the subordinates, in many ways, are dependent upon their superior's evaluation. This dependency is probably one of the most important factors which account for the resemblance of supervisory style in industrial organizations.

Some of the implications of these findings can be suggested. First, it has been pointed out in the review of the literature that after many years of research, personality trait approach to leadership does not provide any conclusive findings about the effect of personality on leadership. The findings in the present study seem to indicate indirectly that personality perhaps is not one of the important factors which determine the supervisory style a supervisor adopts. If the style of supervision a group leader adopts were determined by personality to a substantial extent, the pattern presented above could not have been found. Of course there is a possibility that systematic biases may be built into the recruiting or promoting processes. That is, only a certain type of persons tend to be appointed to supervisory positions. But then again, that is an empirical question which requires further investigation.

Secondly, the findings suggest that supervisors are more responsive to their day-to-day relations with their superiors rather than to a special training course for foremen.<sup>15</sup> This perhaps explains, at

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<sup>15</sup>Etzioni suggested the same notion in his study of dual leadership in organizations. Although his emphasis was on formal and informal leadership, the indication that supervisors response more to their day-to-day relations with the people in the working environment rather than

least partially, why formal foreman training courses are often reported as ineffective. Furthermore, if the top management of an organization wants to set a policy that their first-line supervisors treat their men in a democratic way, a training course in human relations for these supervisors would not be effective if the attitudes and behaviour of the middle management and that of the top management itself remain unchanged.

#### SKILL LEVEL OF WORK GROUP:

It has been hypothesized that the higher the skill level of the work group, the higher the probability that the supervisor will (1) be less production-oriented; (2) be more worker-oriented; (3) control the workers less closely; and (4) spend more time on office work. In this section, we shall present the data pertaining to this hypothesis.

The level of skill of a group was objectively measured by an index reported in Chapter III. Table IV-10 presents the distribution of the skill levels of the work groups that were under the supervision of the foremen in our sample.

Given the distribution of the skill levels of the groups as shown above and that of the scores of the four dimensions of supervisory style as shown in Table IV-2, it appears that the assumption of a normal distribution is justified. The use of product-moment correlation techniques appears to be justified.

to training courses is the same. See A. Etzioni, "Dual Leadership in Complex Organizations," American Sociological Review, 30:388-698, 1965.

TABLE IV-10 DISTRIBUTION OF THE SKILL LEVELS  
OF THE WORK GROUPS

SKILL LEVELS	2.2-4.0	4.1-6.0	6.1-8.0	8.1-10.0	10.1-12.0
N	6	3	29	37	18
%	5.3	2.6	25.5	32.5	15.7
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	TOTAL				
SKILL LEVELS	12.1-14.0	14.1-16.0	16.1-18.0	18.1-20.8	2.2-20.8
N	7	7	4	3	114
%	6.1	6.1	3.5	2.6	100.00
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Median = 8.9					

coefficient to test the hypothesis.

Table IV-11 presents the correlations between the skill level of the work groups and the four dimensions of supervisory style.

TABLE IV-11 CORRELATIONS BETWEEN SKILL LEVELS AND  
DIMENSIONS OF SUPERVISORY STYLE

	PROD. ORIEN.	WORKER ORIEN.	CLOSENESS	TIME ALLOCATION
SKILL LEVELS OF WORK GROUPS	-.10	.04	-.11	.29***
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N = 114			***p < .001	

The correlations presented above show that only the way a supervisor allocates his time is fairly affected by the skill level of his work group. The other three dimensions of supervisory style are not

associated with this structural variable.

As a scattergram indicated that the relationship between the two variables is not linear, we examined the supervisory style of the foremen of groups of high and low levels of skill. The high and the low levels of skill are arbitrarily defined as above and below the median index value of the skill levels of the groups in the sample. The sample was thus divided into two sub-samples. Table IV-12 shows the slopes and the correlations between the two categories of skill level and the four dimensions of supervisory style.

TABLE IV-12 SLOPES AND CORRELATIONS BETWEEN SUPERVISORY STYLE AND SKILL LEVEL OF GROUP, IN TWO CATEGORIES

SKILL LEVELS OF WORK GROUPS	PROD. ORIEN.		WORKER ORIEN.		CLOSENESS		TIME ALLOCATION	
	<u>b</u>	<u>r</u>	<u>b</u>	<u>r</u>	<u>b</u>	<u>r</u>	<u>b</u>	<u>r</u>
LOW LEVEL (2.2-8.9;N=65)	-.02	-.02	-.22	-.16	.18	.11	.09	.10
HIGH LEVEL (9.0-20.8;N=49)	-.07	-.13	.13	.15	.31	-.35*	.22	.38**
N = 114		*p < .05		**p < .01				

By examining Table IV-12 we can see that the relationships between the four dimensions and low skill level are negligible. But the relationships between the dimensions and high skill level are relatively stronger. Two of them are particularly stronger. These statistics indicate that when the skill level of a group is below the median, as measured by the index, skill level is not an influential factor on the supervisory style of the foremen. However, when the skill of a work

group attains a certain level, then it becomes somewhat influential. But it has more effect on the dimensions of closeness and time allocation than on worker orientation and production orientation.

In summary, the skill level of a group was objectively measured by an index of skill level. We found that there is a moderate association between time allocation and the skill level of the group.

A further test of the hypothesis was attempted by dichotomizing the sample in terms of the skill level of the work groups. The median skill index value was used as the cutting point of the dichotomization. The slopes and correlations of the variables of the sub-samples revealed that only when it attains a certain level, skill level has considerable effect on the dimensions of closeness and time allocation of supervisory style. The relationships between high skill level and worker orientation and production orientation are in the direction as predicted. These results moderately supported our hypothesis.

#### DISCUSSION:

First of all, the prevalence of humanistic supervision in groups of high skill level can be considered as a result of mutual expectation. As noted before, high skilled workers expect humanistic supervision and most supervisors would respond accordingly, because they themselves are members of the trade or profession and they know the workers' expectations. On the other hand, during the interviews, it was found that the supervisors also expect the skilled workers to do their jobs with little supervision. The foreman of a maintenance department put it this way:

"They (skilled workers) are trained that way. They should be able to do their jobs with minimum amount of supervision."

In addition, the work of men at high skill levels involves elements of judgement. Some aspects of their jobs are not subject to complete specification and analysis. The supervisor cannot tell those workers in advance exactly what to do and how much time the work should take. In other words, production standards are difficult, and in some cases almost impossible, to set with complete precision. Under these circumstances, the supervisor cannot control the workers closely, if he wants to be efficient. Relevant previous studies found similar results. Crozier, in a study of six insurance companies, found that "liberal" style was prevalent in policy-men groups; and authoritarian style, in clerk and archivist groups.<sup>16</sup> The reason is that a manager of policy-men groups needs to depend on the good will and the professional conscience of his collaborators. In other words, the manager expects his professional trained subordinates to do their jobs with little supervision.

Nealey and Blood, in their study of leadership performance of nursing supervisors found that effective first level supervisors tended to be more task-oriented (bureaucratic supervision) than ineffective ones. But effective unit supervisors (second level) were more relation-

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<sup>16</sup>Michel Crozier, The World of the Office Worker, trans. by David Landau, The University of Chicago Press, p. 127, 1971. (originally published in 1965).



oriented (humanistic supervision) than ineffective unit supervisors.<sup>17</sup> Although the comparison was between two levels of supervisors, the implication of the findings is quite similar to what was found in the present study. The unit supervisors in the nursing organization oversee the work of their professional colleagues who have essentially the same training as she does. A highly directive supervision is likely to be resented by their subordinates who will feel that their professional competence and judgement are being questioned. They will respond more favourably to a more permissive, people-oriented supervisor who will give general guidance, who will encourage decision-making by her subordinate, and who will recognize subordinates' status indicated by their professional training.

The first-line supervisor, on the other hand, is in charge of the day-to-day operations of the ward and she supervises sub-professional nursing aides who require close supervision and in most cases welcome clear and precise instructions on how to perform their assignments.

P.R. Lawrence's description of how the "innovators" and "stabilizers" should be treated differently is along the same line of thinking. We quote:

There is now beginning to be some research evidence to support what many intuitive managers have known for a long time. And that is that the different departments in which

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<sup>17</sup>S.M. Nealey and M.R. Blood, Leadership Performance of Nursing Supervisors at two Organizational Levels, Urbana, Ill., Group Effectiveness Research Laboratory, University of Illinois, 1967, Mimeograph; cited by F.E. Feidler, A Theory of Leadership Effectiveness, New York: McGraw-Hill, pp. 241-243, 1967.

innovators and stabilizers work, function best when they are structured and run and led in quite different and distinct ways.

[For the innovators], the leadership style that seems to work better when goals and targets are primarily set by the innovators themselves, and when the goals are fairly general and long range. control in such an organization is carried out by informal general rules and prescribed procedures.

The work of the stabilizers (that are operating more in production departments) seems to go on best in a quite different organizational environment, one in which more emphasis is put on vertical superior-subordinate communication channels; where many more of the ground rules of the organization are formalized and codified into procedural manuals; where a more directive style of leadership is the pattern;...<sup>18</sup>

Although skilled blue-collar workers may be different from the innovators in research and development departments in some ways, both kinds of workers should be allowed to innovate and to use their judgment.

There is also a power element involved in the relationship between the two variables. Some skills are indispensable for certain industries, so that the supervisor has to be more accommodating. For example, the bottle makers for Company G, the melters for Company B among the industries participating in this study, and pattern makers, die makers, and tool room personnel in general, possess skills and experience which are relatively rare and crucial to the production of

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<sup>18</sup>P.R. Lawrence, "Organizing for Innovations?" An Address before the second Harvard Business School Pittsburgh Regional Conference, April 4, pp. 3-4, 1964, cited by E.P. Learned and A.T. Sproat, Organization Theory and Policy: Notes for Analysis, Homewood, Ill., Irwin, pp. 62-63, 1966.

the industries where they are employed. We suspect that, to get the best work out of these men, humanistic style of supervision is perhaps the best, if not the only way. This is not only because these workers are too knowledgeable and too proud for their trades to be closely supervised, but also because they can put the management in a very difficult position if they stop working or slow down due to their resentment of bureaucratic supervision. However, since there is no measurement of productivity in the present study, this argument can only be considered as a hypothesis for further study.

#### TASK COMPLEXITY:

It has been hypothesized that the more complex the tasks to be performed, the higher the probability that the supervisor will (1) be less production-oriented; (2) be more worker-oriented; (3) control his workers less closely; and (4) spend more time on office work. In this section, we shall present the data pertaining to this hypothesis.

Complexity was measured both subjectively and objectively. The supervisors were asked to assess the complexity of the tasks their groups were assigned to do. The objective measurements were the number of operations that were under a foreman's supervision, the level of skill required by each operation of work, and the number of crews there were in a group. A complexity score was obtained by adding up the scores of the six measurements (See Chapter III).

Table IV-13 presents the distribution of the complexity scores.

TABLE IV-13 DISTRIBUTION OF COMPLEXITY SCORES

COMPLEXITY SCORES	16-20	21-25	26-30	31-35	36-40
N	1	2	20	36	21
%	.9	1.8	17.5	31.6	18.4
<hr/>					
COMPLEXITY SCORES	41-45	46-50	51-55	TOTAL <hr/> 16-55	
N	21	12	1	114	
%	18.4	10.5	.9	100.0	
<hr/>					
Mean = 36.0			Median = 35.1		

Table IV-14 shows the product-moment correlation between complexity and the four dimensions of supervisory style.

TABLE IV-14 CORRELATIONS BETWEEN TASK COMPLEXITY AND DIMENSIONS OF SUPERVISORY STYLE

	PROD. ORIEN.	WORKER ORIEN.	CLOSENESS	TIME ALLOCATION
TASK COMPLEXITY	.22**	.17*	0.07	.25***
<hr/>				
N = 114	*p < .05	**p < .01	***p < .001	

By examining the table above, we can see that task complexity is positively and "significantly" correlated with three dimensions: production orientation, worker orientation, and time allocation. Its correlation with closeness is also in the predicted direction. The positive correlations indicate that the more complex the tasks, the

supervisor of a group tends to be more production-oriented, to be more worker oriented, and to spend more time on office work. It was expected that when the tasks are complex, the foreman tends to be less production-oriented. However, the data indicate that a foreman can be both production-oriented and worker-oriented, when his group has complex tasks.

In brief, we found that the hypothesis is partially supported by the data. The relationships between three out of four dimensions are in the direction predicted. In general, the possibility that a foreman adopts a humanistic supervisory style increases when the complexity of tasks his group is assigned to perform increases. However, the data also indicated that while a foreman is worker-oriented, he is not necessarily less production-oriented.

#### DISCUSSION:

As indicated previously, the hypothesis about the relationship between task complexity and supervision is based on the administrative-load theory of supervision, which is an extension of the span of control theory to include items other than the number of subordinates. This theory suggests that it becomes all the more difficult for a supervisor to exercise close hierarchical control with the increasing number of different items to which he must give his time, attention, and energy.

Our findings support the hypothesis only partially. To a limited extent, the trend is that the more complex the tasks, the greater the likelihood that a foreman employs a humanistic supervisory style. This

seems to be consistent with previous studies. Brewer extensively studied two underwriting departments in an insurance company, where work differed in terms of complexity.<sup>19</sup> Department A's work was more complex (its personnel needed more training and experience to qualify for their positions; it handled more lines of insurance and was responsible for more branches and agencies). Department B's work was less complex. By observing the superior-subordinate interactions, Brewer found that there was distinction between the ways the superintendents (first-line supervisors in this company) in the two departments controlled their subordinates. The style employed by the superintendent of Department A could be described as humanistic supervision; the style employed by the head of Department B, bureaucratic supervision.

Findings of Crozier's study of insurance companies, which was cited above,<sup>20</sup> support the same reasoning. Obviously, the tasks of the policy-men groups, where "liberal" supervisory style was prevalent, were far more complex than those of the clerk groups.

The relationship between task complexity and supervision can also be explained from the subordinate aspect. It is very likely that the effect of complexity on subordinates is just as great as on superiors. An increase in task complexity requires a different kind of role

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<sup>19</sup>John Brewer, "Organizational Patterns of Supervision: A Study of the Debureaucratization of Authority Relations in Two Business Organizations," in O. Grusky and G.A. Miller, The Sociology of Organizations: Basic Studies, Free Press, pp. 347-347, 1970.

<sup>20</sup>Crozier, op. cit.

performance from the subordinates. Since a basic part of supervising duties is to secure necessary role performance from subordinates, a change in subordinates' role performance would have an effect on supervision. If this is so, then what does an increase in task complexity have upon the kinds of role performances required of the subordinates? Janowitz says of the new military: "For combat the maintenance of initiative has become a crucial requirement of greater importance than rigid discipline."<sup>21</sup> In the old military which was based on close order formations and a simple technology, the key requirement was strict obedience to orders. But in the new military, owing to the greater dispersion of combat units from centers of command and to more complex technical skills and knowledge needed to operate equipment, those in command must often call upon subordinates to act independently.

Initiative appears to be an important requirement of industries using automated technology as well. With the decline of craft technology in favour of mechanization, what the industry needs from the workers is mainly obedience to the rhythm of the machines and assembly lines. They require little in terms of initiative. However, Blauner<sup>22</sup> argues that the introduction of automated technology increases the initiative that must be exercised by workers, despite the fact that it further eliminates

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<sup>21</sup>Morris Janowitz, "Changing Patterns of Organizational Authority: The Military Establishment," Administrative Science Quarterly, 3:473-493, 1959.

<sup>22</sup>Robert Blauner, Alienation and Freedom, Chicago: University of Chicago Press, pp. 132-135; 167-169, 1964.

the need for direct application of more craft skills to the production process. Instead, its greater technical complexity requires the application of more craft skills to maintenance problems; and its greater functional complexity places a heavy load of responsibility on the operators who monitor the automated process. The functional complexity of the individual operator's job makes it difficult to check his work frequently, while the overall functional complexity of the process makes it essential that the operators respond quickly and directly to any symptoms of disorder to avoid breakdown which may affect the operations of large parts of the organization.<sup>23</sup> This greater responsibility as well as the skill required in handling maintenance problems, makes initiative extremely important.

In the above discussion, we have tried to show that the major effect an increase in task complexity has on the role performance that is required of subordinates is initiative. And it is under humanistic supervision rather than bureaucratic supervision that room for initiative is allowed.

#### MACHINE/MAN CONTROL:

It has been hypothesized that the higher the degree of machine/man control, the higher the probability that the supervisor will (1) be less production-oriented; (2) be more worker-oriented; (3) control his workers less closely; and (4) spend more time on office work.

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<sup>23</sup>Ibid.



This hypothesis is about the relationship between worker autonomy or freedom and supervisory style. For convenience, the term "machine/man control" will be used. Machine control means the pace and the working process are predominantly controlled by the machinery. And the workers are most of the time tied to the machines, so that they have relatively less autonomy or freedom in controlling their work. Man control, on the other hand, means the workers have relatively more autonomy or freedom in controlling their own work. An operator of a presser has relatively less freedom than a machine repairman, because the presser is in a fixed place and its speed is determined by an engineer. The operator has no choice but to remain at the presser's location and to keep up with the speed. The repairman, on the contrary, has relatively more freedom in controlling his work. Although he has to be in a designated place to repair a machine, he has more freedom to move around to bring tools and material, to ask for instructions, and so on. Meanwhile, he has to make some decisions and he can more or less pace his own work.

We reasoned that the degree of freedom that a group of workers can enjoy affects the style of supervision that a foreman adopts. The hypothesis was that the more autonomy a group of workers have, the greater the possibility that the supervisor will adopt a humanistic style. Operationally, worker autonomy is defined in terms of the extent to which the workers can make decisions about what tools and materials to be used in their work and to what extent workers can pace their work. The foremen were asked to assess the extent to which the workers under

their supervision can make those decisions. The greater the extent of decision making of the workers, the higher is the machine/man control score.

Table IV-15 presents the distribution of the scores of machine/man control of the work groups led by the foremen in the sample.

TALBE IV-15 THE DISTRIBUTION OF THE SCORES OF  
MACHINE/MAN CONTROL

MACHINE/MAN CONTROL SCORES	1-3	4-6	7-9	10-12	13-15	Total 1-15
N	21	23	26	26	18	114
%	18.4	20.2	22.8	22.8	15.8	100.0
Mean = 8.0			Median = 7.5			

According to our hypothesis, we would expect negative correlations between machine/man control and production orientation and closeness, and positive correlations between worker orientation and time allocation. By examining Table IV-16, we can see that while machine/man control

TABLE IV-16 CORRELATIONS BETWEEN MACHINE/MAN CONTROL AND  
THE DIMENSIONS OF SUPERVISORY STYLE

	PROD. ORIEN.	WORKER ORIEN.	CLOSENESS	TIME ALLOCATION
MACHINE/MAN CONTROL	.00	.07	-.25**	.21**
N = 114			**p < .01	

is slightly associated with closeness and time allocation as predicted, it is not associated with production and worker orientations. These results indicate that a foreman tends to control his workers less closely and spend more time on office work, as worker autonomy increases.

Although the results presented above indicated that the degree of worker autonomy does have some effect on the foreman's supervisory style, the magnitude of the correlations is not substantial. We therefore tried to test the hypothesis further by dichotomizing the sample in terms of the median machine/man score of all the groups. High degree of autonomy is defined arbitrarily by scores higher than the median. Low degree of autonomy is defined by scores that are below the median. Table IV-17 presents the slopes and the correlations between the two categories of machine/man control level and the four dimensions of supervisory style.

TABLE IV-17 SLOPES AND CORRELATIONS BETWEEN SUPERVISORY STYLE AND MACHINE/MAN CONTROL, IN TWO CATEGORIES

MACHINE/MAN CONTROL	PROD. ORIEN.		WORKER ORIEN.		CLOSENESS		TIME ALLOCATION	
	<u>b</u>	<u>r</u>	<u>b</u>	<u>r</u>	<u>b</u>	<u>r</u>	<u>b</u>	<u>r</u>
LOW (3-7;N=58)	.01	.03	-.01	-.01	.02	.03	.05	.10
HIGH (8-15;N=56)	-.29	-.30*	.01	.01	-.36	-.25	.46	.46**

\*p < .05

\*\*p < .01

The relationships between low machine/man score and the four dimensions of supervisory style are negligible. But high machine/man score is

negatively correlated with production orientation and positively correlated with time allocation. Its relationship with closeness is in the direction predicted. Its relationship with worker orientation is negligible. These results indicate that when the machine/man control level is above the median, the foreman of a group tends to spend more time on office work and to be less production-oriented.

In brief, we found that the hypothesis about the relationship between machine/man control and supervisory style was partially supported by the data. High level of autonomy enjoyed by the workers was found to have a moderate effect on two dimensions of supervisory style. But supervisory style is not associated with low level of machine/man control.

#### DISCUSSION:

The rationale behind this hypothesis is that workers who have the authority and responsibility to make certain decisions about the materials and equipment are usually skilled workers (the correlation coefficient between machine/man control and skill level of workers is .43\*\*\* in this study.). Since they are trained and expected to make this kind of decisions, the supervisor does not have to be too concerned with production or to watch them closely. Instead, in most cases he would check the results to make sure that his workers have made the right decisions and offer assistance whenever it is needed.

However, although the data generally supported the hypothesis that when the workers in a group have relatively more autonomy, the supervisor tends to adopt a humanistic style of supervision, we cannot

infer that the opposite is necessarily true. As a matter of fact, the data indicated that the four dimensions of supervision are not associated with low level of machine/man control. This indicates that when autonomy is below a certain level, it does not affect the supervisory style a supervisor may adopt.

Since there is a fairly close relationship between machine/man control and the skill level of workers, most of the explanations discussed in the section dealing with skill level are also applicable to the relationship between machine/man control and supervision. It has been pointed out that the work of men at high skill levels involves elements of judgement. Production standards are difficult to set with complete precision. As a result, the workers gain considerable control over their work. Although the material and equipment that should be used for doing a certain job are in many cases technically determined, at least the pace of the work is to a large extent under the control of the workers rather than controlled by their foreman or the machinery. This reasoning is consistent with findings of several previous studies. For example, Woodward's studies of technology and management show that the ratio of supervisors is very low in unit or batch-production systems.<sup>24</sup> One of the correlates of the low ratio is that the workers in such systems have high level of autonomy - responsibility of making relevant decisions, so that a few supervisors can oversee a large number of workers.

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<sup>24</sup>Woodward, op. cit.

Similar inference can also be drawn from Crozier's findings of his study cited above. A 'liberal' style prevailed in policy-men groups not only because of the agents' high level of education, but also because of the nature of the job. Typically, insurance sales takes place away from the office. Within the general guidelines of the company, an agent has to make a number of decisions in any single sale. In other words, the agent enjoys considerable amount of autonomy, so that close, bureaucratic control is impossible and perhaps unnecessary as well.

#### AGE, EDUCATION, AND LENGTH OF SERVICE:

In this section, we shall analyze the data pertaining to the background variables. Tables IV-18 to IV-20 present the distributions of age, education (the number of years of schooling), and the length of service which was differentiated into three separate variables: the number of years worked as foreman, the number of years worked on the present job, and the number of years worked for the company.

In our discussion of the background variables in Chapter II, we presented various arguments about the influences of age, education, and length of service. However, these arguments lead to conflicting predictions. For example, we have argued that older foremen tend to be more responsive to their superiors, for they know "the ropes". On the other hand, younger foremen may be more responsive to the "formal" requirements of their job. Thus, they may supervise more bureaucratically. However, younger foremen are usually better educated. If we follow

TABLE IV-18 DISTRIBUTION OF AGE OF THE SUPERVISORS

	<u>Age</u>	<u>n</u>	<u>%</u>
	21-24	3	2.6
	25-29	8	7.0
	30-34	7	6.2
	35-39	14	12.3
	40-44	17	14.9
	45-49	25	21.9
	50-54	16	14.0
	55-59	19	16.7
	60-64	5	4.4
TOTAL	23-62	114	100.0
Mean = 45.0		Median = 45.8	

TABLE IV-19 DISTRIBUTION OF EDUCATION OF SUPERVISORS

	<u># of years</u>	<u>n</u>	<u>%</u>
	5-8	21	18.4
	9-13	85	74.6
	14-17	8	7.0
Mean = 10.61		Median = 10.55	

Pelz' argument,<sup>25</sup> we may predict that a younger and better educated supervisor does not have to closely control his workers, because he can 'influence' his superiors. And the workers would recognize the support he receives from the management, so that they are willing to follow him.

<sup>25</sup>D.C. Pelz, "Influence: a Key to Effective Leadership in the First-line Supervisor," Personnel, 29:3:209-217, 1952.

TABLE IV-20 DISTRIBUTION OF THE NUMBER OF YEARS WORKED AS FOREMAN, THE NUMBER OF YEARS WORKED ON PRESENT JOB, THE NUMBER OF YEARS WORKED FOR THE COMPANY

No. of years	Years worked as foreman		Years worked on present job		Years worked for company	
	n	%	n	%	n	%
1-5	49	43.0	74	64.1	10	8.8
6-10	18	15.8	13	11.4	9	7.9
11-15	11	9.6	10	8.7	10	8.8
16-20	12	10.5	9	7.9	13	11.4
21-25	13	11.4	4	3.6	23	20.2
26-30	7	6.1	3	2.7	20	17.5
31-35	3	2.7	1	.9	22	19.3
36-40	0	0.0	0	0.0	5	4.3
41-45	1	.9	0	0.0	0	0.0
46-50	0	0.0	0	0.0	2	1.7
RANGE	1-41		1-31		1-47	
Mean	11.3		6.86		22.57	
Median	7.8		3.68		24.77	

One way to sort out the conflicting predictions is to test them against the data. Table IV-21 presents the correlations between these background variables and the four dimensions of supervisory style.

TABLE IV-21 CORRELATIONS BETWEEN BACKGROUND VARIABLES AND THE DIMENSIONS OF SUPERVISORY STYLE

	PROD. ORIEN.	WORKER ORIEN.	CLOSENESS	TIME ALLOCATION
AGE	-.00	.03	-.37***	.04
EDUCATION	.15	.05	-.14	.18*
YRS AS FOREMAN	-.00	-.01	-.32***	.01
YRS ON JOB	.02	-.03	-.23***	-.14
YRS WORKED FOR COMPANY	.03	-.04	-.26***	.00

N = 114

\*\*\*p < .007



As shown in the table above, while closeness is significantly correlated with age and the age-related variables, time allocation is slightly affected by education. These results indicate that the younger foremen and those who have not been in service for a long time tend to supervise more closely. The higher a foreman's education, the more time he tends to spend on office work. Whether a foreman is more oriented toward production or toward the workers does not seem to be affected by these background variables.

#### DISCUSSION:

The correlations between age and age-related variables and closeness of supervision are moderate. The findings indicated by the data seem to be consistent with the prediction that younger foremen tend to be more responsive to the 'formal' requirements of their jobs, and, consequently, tend to supervise more bureaucratically. This appears to be contradictory to the prediction that younger and better educated foremen tend to supervise less closely. We shall try to explain this seeming contradiction. First of all, the latter argument was developed from studies of American industries where the employment of college graduates as foremen is more or less a regular practice. Since managerial personnel at higher levels are most likely also college graduates themselves, the younger foremen can identify with them relatively easily, and deal with them more effectively. This relationship constitutes what Pelz called "influence." The workers, who are aware of their foreman's influence upon the higher management, would be willing to follow him. Consequently,

close supervision on the foreman's part is unnecessary.

However, while some Canadian industries have begun to employ college graduates as foremen, it is yet to become a regular practice in this country. Among the 114 foremen in the sample, only 12 (10.5%) had college education. Out of the 12, only one had a university degree; three were community college graduates; the rest had one or two years of education at that level. The proportion of college educated general foremen among the 35 interviewed is larger. Ten (28.6%) of the 35 general foremen have reached college level. Five had university degrees. But seven of the ten were concentrated in one company. These facts make it clear that the Canadian situation is quite different from the one that the argument is based upon. Furthermore, when education was controlled, the correlations between age and closeness for the college-educated and the non-college groups are  $-.32$  and  $-.36^{***}$  respectively. The directions of the two correlations are the same. Thus, it seems to be reasonable to conclude that this argument does not hold in the Canadian situation.

We have also pointed out that modern society is characterized by rapid technological change. While age and seniority may bring status to a foreman, they may also make him less adaptive to innovations and make his skills and knowledge obsolete. However, authority of competence<sup>26</sup> is crucial for a foreman to perform his role successfully. If an older

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<sup>26</sup>For a good discussion of the bases of authority, see Robert L. Peabody, Organizational Authority: Superior-Subordinate Relationships in Three Public Service Organizations, New York: Atherton Press, Chapter VII, 1964.

foreman's technical knowledge is obsolete, his authority would be undermined. This situation may influence the foreman's supervisory behaviour in different ways. One possibility is this: he may rely more on his authority of position, i.e., his official authority. In this case, his style of supervision will tend to be more bureaucratic. Another possibility, however, is the opposite. Since his authority of competence is weak, his authority is undermined. Consequently, his official authority is more likely to be challenged. Under this circumstance, if he remains in that position and wants to get things done, he probably has to be more lenient toward his subordinates and/or more acquiescence to his superior. Which of the two possible ways discussed above an older foreman is more likely to adopt? To find out from empirical data is one way of answering the question. As it will be shown in the next chapter, the data indicate that the second possibility is more likely to be adopted. However, it should be pointed out that the factors that shaped the trend are not clear in the data. Further explanation will be attempted in the more detailed analysis reported in Chapter V.

The finding that the number of years on the present job is negatively correlated with closeness, indicating that the longer a foreman is on his present job, the less he tends to supervise closely. This finding is consistent with a commonly accepted sociological thinking. That is, stable group relationship creates mutual understanding among group members or between the group leader and the members. It is also consistent with Evans' finding, cited in Chapter II, that when the work

group members have been in the same unit for a longer period of time, agreement between a supervisor and his work group in terms of describing a supervisor's style of supervision will occur.<sup>27</sup> However, it should be pointed out that this reasoning is based on the assumption that group membership remains stable for a reasonably long period of time. But, both in Evans' and in the present study only the number of years a foreman stayed on his job was known. The turnover of the workers was not checked. Thus, the extent to which this finding can be generalized is quite limited.

#### SUMMARY

In this chapter, we have analyzed, in a general way, the data collected to test hypotheses formulated to explain variations in supervisory style. The hypothesis about the influence of group size was supported to only a limited extent. While the positive and significant effect of small group size on worker orientation is consistent with our prediction, the positive relationship between large group size and closeness was contradictory to what was expected.

The hypotheses of the influence of perceived superior's style, the skill level of the work group, task complexity, and machine/man control were in general supported by the data. The results suggest that a foreman tends to adopt a humanistic supervisory style when he

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<sup>27</sup>Martin G. Evans, "Leadership Behaviour: Demographic Factors and Agreement between Subordinate and Self-descriptions," Personnel Psychology, 25:649-653, 1972.

perceives that he himself is supervised in a humanistic way, when the skill level of his work group is high, when the tasks are complex, and when the supervised can control their work process more than they are controlled by the machinery.

Age and age-related variables (the number of years as foreman, the number of years worked for the company, etc.) have significant influence on closeness of supervision. Education is slightly associated with time allocation. Production and worker orientations are not affected by any of these background variables.

In general, the magnitudes of the correlations are not big enough to claim strong support for the hypotheses. It is necessary, therefore, to explore the possibility that a more complex model fits the data.

## Chapter V

### ANALYSIS OF DATA - PART II

In the last chapter, the discussion focussed on an analysis of the effects of the independent variables - social structure, technology, and personal attributes - on supervisory styles. The analysis reveals that these factors individually explain only a limited proportion of the variance in supervisory styles. In other words, the way a supervisor exercises his authority is not completely determined by the structural and the technological characteristics of his environment, nor entirely by his personal attributes. In an attempt to more fully elaborate the dynamics of supervisory style, we shall undertake a detailed examination of the data in this chapter.

There are two questions that we felt worthwhile for further exploration: (1) What is the influence of the three sets of independent variables taken together on the adoption of supervisory style? (2) Do differences between supervisors, such as age or experience, interact with situational variables resulting in differences in supervisory style? In this chapter, we shall try to answer these two questions.

#### COLLECTIVE INFLUENCE OF THE INDEPENDENT VARIABLES ON SUPERVISORY STYLES OF FOREMEN

Our analysis thus far makes it obvious that factors influencing supervisory style in modern industrial organizations are highly complex.

The structural and the technological characteristics of the workplace and the foremen's personal attributes (background variables), as we have measured them, show few clear cut strong relationships to supervisory style. So far, the independent variables have been dealt with individually in the analysis. In the following, we shall examine the amount of variance which can be accounted for by all of the independent variables taken together. Tables V-1 to V-4 show the amount of variance of each of the four dimensions of supervisory style that can be explained by structural, technological, and background variables, and the three sets of variables taken together. The variables contributing the major proportions of explained variance are indicated by "V's" in these tables.<sup>1</sup>

#### PRODUCTION ORIENTATION:

In the first part of the analysis, we found that all but one - complexity ( $r = .22$ ) - of the structural and technological variables are

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<sup>1</sup>To find out the collective influence of the structural, technological, and the background variables on the dimensions of supervisory style, stepwise multiple regression was used. This method provide the best prediction possible with the fewest independent variables. See Norman H. Nie, Dale H. Bent, and Hadlai Hull, Statistical Package for the Social Sciences, New York: McGraw-Hill, pp. 180-81, 1970. The "V's" in Table V-1 through Table V-4, and the "VARIABLES" in Table V-5 through Table V-9, are the variables that were brought into the multiple equation and their F value are significant at .05 level or better. However, if the R is not significant, the "V's" or the "VARIABLES" for that R are also non-significant. The order of the "V's" and the "VARIABLES" in the tables is the order that they were brought into the equation. The first one accounts for the largest amount of the variance.

not correlated with this dimension of supervisory style. When their contributions are taken together, as shown in Row I of Table V-1, the multiple correlation ( $R = .30$ ) is slightly larger than the zero order correlation. Complexity is the major but not significant influencing factor.

TABLE V-1 MULTIPLE CORRELATIONS BETWEEN THE INDEPENDENT VARIABLES AND PRODUCTION ORIENTATION

		PRODUCTION ORIENTATION m=12.22 s.d. = 1.5
I STRUCTURAL & TECHNOLOGICAL VARIABLES	R	.30 ( $F = 2.99$ $DF = 2, 111$ ) n.s.
	V's	COMP <sup>+</sup>
II BACKGROUND VARIABLES	R	.20 ( $F = 1.65$ $DF = 1, 111$ ) n.s.
	V's	YRS AS FOREMAN <sup>-</sup>
III STRUCTURAL TECHNOLOGICAL & BACKGROUND VARIABLES	R	.36 ( $F = 3.01$ $DF = 2, 111$ ) n.s.
	V's	COMP <sup>+</sup> YRS AS FOREMAN <sup>-</sup> YRS WKED FOR CO <sup>-</sup>

- Notes: 1. "V's" indicates the independent variables that entered into the multiple regression equation have an F value which is significant at .05 level or better.
2. \*\*p < .01, \*p < .05.
3. PSSS = perceived superior's supervisory style. COMP = task complexity; MMC = machine/man control; SOG = size of group; SEC SCH = secondary school education; YRS WKED FOR CO = the number of years worked for the company.
4. n.s. = non-significant.



Now, let us look at the amount of variance accounted for by the background variables collectively (Row II). The relationship is weak and non-significant. If we look at Row III, we can see that the combined influence of all the independent variables slightly increased the amount of explained variance (from  $.30^2$  to  $.36^2$ ). Task complexity, the number of years as foreman and the number of years worked for the company, are the major influencing factors.

#### WORKER ORIENTATION:

In part I of the analysis, we found that none of our independent variables except task complexity ( $r = .17^*$ ) is correlated with worker orientation. We can see, in Row I of Table V-2, that when the influence of the structural and technological variables are taken together in the

TABLE V-2 MULTIPLE CORRELATIONS BETWEEN THE INDEPENDENT VARIABLES AND WORKER ORIENTATION

		WORKER ORIENTATION m = 15.88 s.d. = 2.3
I STRUCTURAL & TECHNOLOGICAL VARIABLES	R	.22 (F = 2.25 DF = 1, 111) n.s.
	V's	COMP <sup>+</sup>
II BACKGROUND VARIABLES	R	.22 (F = 2.12 DF = 1, 111) n.s.
	V's	YRS AS FOREMAN <sup>-</sup>
III STRUCTURAL TECHNOLOGICAL & BACKGROUND VARIABLES	R	.33 (F = 3.05 DF = 1, 111) n.s.
	V's	COMP <sup>+</sup>

Note: For abbreviations, see the notes of Table V-1.

multiple regression equation, the amount of explained variance increases ( $R = .22^2$ ). Although the multiple correlation coefficient is not significant, task complexity appears again as the major contributor to the amount of explained variance.

The collective influence of the background variables are shown in Row II. The relationship, like the one between production orientation and these variables, is also weak and non-significant ( $R = .22$ ). If we look at Row III, we can see that the effect of all the three sets of independent variables combined together increases the amount of explained variance slightly. This indicates that background variables have no substantial contribution to the variation of worker orientation.

#### CLOSENESS:

Previously, we found that closeness is moderately correlated with perceived superior's style (PSSS) and machine/man control (MMC) (.23\*\* and .25\*\* respectively). We can see now in Table V-3, Column I, that when all of the structural and technological variables are taken together the amount of explained variance increases. Perceived superior's supervisory style (PSSS) and machine/man control (MMC) again show the only significant influence on closeness.

Column II shows the amount of explained variance of closeness accounted for by the background variables when the structural and technological variables are left out of the analysis. The relationship is moderately significant. However, if we look at Column III, we can see that when all of the independent variables are taken together the amount

TABLE V-3 MULTIPLE CORRELATIONS BETWEEN THE INDEPENDENT VARIABLES AND CLOSENESS

	CLOSENESS m = 8.16 s.d. = 2.5	
I STRUCTURAL & TECHNOLOGICAL VARIABLES	R	.33* (F = 4.23 DF = 2, 111)
	V's	PSSS <sup>-</sup> MMC <sup>+</sup>
II BACKGROUND VARIABLES	R	.41** (F = 3.55 DF = 4, 109)
	V's	YRS WKED FOR CO <sup>-</sup> YRS AF FOREMAN <sup>+</sup> SEC SCH <sup>-</sup> AGE <sup>-</sup>
III STRUCTURAL TECHNOLOGICAL & BACKGROUND VARIABLES	R	.58** (F = 3.0 DF = 8, 105)
	V's	PSSS <sup>-</sup> MMC <sup>+</sup> YRS WKED FOR CO <sup>-</sup> AGE <sup>-</sup> SEC SCH <sup>-</sup> YRS AS FOREMAN <sup>+</sup>

Note: For abbreviations, see the notes of Table V-1

of explained variance in closeness increases considerably (from .33<sup>2</sup> to .58<sup>2</sup>). This indicates that the background variables have some definite influence. While PSSS and MMC in combination still account for the major proportion of explained variance, the background variables such as the length of service, age, and education also have some contribution.

#### TIME ALLOCATION:

Previously, we found that all, except group size, of the structural and technological variables are moderately correlated with the dimension of time allocation of supervisory style (SOG  $r = .16$ ; PSSS  $r =$

.23\*\*\*; SLW  $r = .28^{***}$ ; COMP  $r = .25^{***}$ ; MMC  $r = .21^{***}$ ). Collectively, the amount of variance they account for increases, as expected, though not substantially ( $R = .38^2$ , see Row I of Table V-4). Perceived superior's supervisory style (PSSS), skill level of workers (SLW), and the size of the group (SOG) show significant influence on time allocation.

TABLE V-4 MULTIPLE CORRELATION BETWEEN THE INDEPENDENT VARIABLES AND TIME ALLOCATION

	TIME ALLOCATION $m = 4.30$ $s.d. = 1.7$	
I STRUCTURAL & TECHNOLOGICAL VARIABLES	R	.38** ( $F = 4.57$ $DF = 3, 110$ )
	V's	PSSS <sup>-</sup> SLW <sup>+</sup> SOG <sup>+</sup>
II BACKGROUND VARIABLES	R	.32 ( $F = 3.55$ $DF = 1, 112$ ) n.s.
	V's	YRS ON JOB <sup>+</sup>
III STRUCTURAL TECHNOLOGICAL & BACKGROUND VARIABLES	R	.47** ( $F = 3.28$ $DF = 5, 108$ )
	V's	PSSS <sup>-</sup> SOG <sup>+</sup> SLW <sup>+</sup> YRS ON JOB <sup>+</sup> COLLEGE <sup>+</sup>

Note: For abbreviations, see the notes of Table V-1.

Row II of Table V-4 shows the collective influence of the background variables on time allocation, when the structural and technological variables are not included in the analysis. The relationship is moderate but significant. However, if we look at Row III, we can see that the amount of explained variance in time allocation is increased by taking

all three sets of independent variables together (from  $.38^{**2}$  to  $.47^{**2}$ ). While perceived superior's supervisory style (PSSS), skill level of the workers (SLW), and the size of the group (SOG) in combination account for the major proportion of variance in time allocation, some background variables, such as education, and the number of years on the job, also have some degree of influence.

In summary, from the above analysis, we can see that the collective influence of the three sets of independent variables is considerably stronger on closeness and time allocation than on the other two dimensions - worker orientation and production orientation. This pattern is consistent with what was found in the first part of the analysis (Chapter IV). The data also indicate that the background variables have a constant influence on all of the four dimensions of supervisory style, and are especially significant on closeness.

#### COLLECTIVE INFLUENCE OF THE INDEPENDENT VARIABLES ON SUPERVISORY STYLES OF FOREMEN, BY AGE GROUPS

We now proceed to explore in more detail the factors affecting supervisory style by examining more closely the influence that the independent variables have. It should be pointed out that in the last section of Chapter IV it has been shown that age, among other background variables, is the strongest differentiating factor of supervisory style, especially on closeness. Taking this finding as a lead, we shall take up the age groups and analyze the relationship between the independent and dependent variables.

Tables V-5 to V-6 and Tables V-8 to V-9 present the data for each dimension of supervisory style for each of the three age groups. Multiple correlation coefficients and the major contributors (i.e., "variables" in the tables) are presented. In the following, the discussion takes up the dimensions in turn.

#### PRODUCTION ORIENTATION:

Table V-5 presents the multiple correlations between the independent variables and production orientation of the first-line supervisors in three age groups.

As it is shown in Row III of Table V-5, the collective influence of all the three sets of independent variables is the strongest for the young group of foremen ( $R = .55^*$ ), next for the oldest group ( $R = .54^*$ ), and the weakest for the middle-aged foremen ( $R = .39^*$ ).

In general, the patterns of this dimension are not very clear. For the old age group, the major contributors are the length of service and education variables. But the directions of these relationships are not systematic.

For the middle age group, complexity is the major influencing factor, but not a strong one.

For the young group, the strongest influence is the number of years worked for the company. The other two influencing variables are the skill level of the workers (SLW) and complexity of task (COMP).

As it was shown, the independent variables do not seem to have systematic influence on this dimension of supervisory style. And, as

TABLE V-5 MULTIPLE CORRELATIONS BETWEEN THE INDEPENDENT  
VARIABLES AND PRODUCTION ORIENTATION, BY  
AGE GROUPS

	YOUNG GROUP		MIDDLE GROUP		OLD GROUP	
	39 or younger		40-49		50 or older	
	Mean = 12.21 s.d. = 1.73 n = 32		Mean = 12.23 s.d. = 1.37 n = 42		Mean = 12.42 s.d. = 1.59 n = 40	
	R	"VARIABLES"	R	"VARIABLES"	R	"VARIABLES"
I STRUC'L & TECH'L VARIABLES	.34 F=2.0 n.s. DF=2,29	COMP <sup>+</sup> SLW <sup>-</sup>	.38* F=3.5 DF=2,39	COMP <sup>+</sup>	.18 F=1.3 n.s. DF=1,38	COMP <sup>+</sup>
II BACKGROUND VARIABLES	.33* F=3.8 DF=1,30	YRS WKED FOR CO <sup>-</sup>	.21 F=1.9 n.s. DF=1,40	YRS ON JOB <sup>-</sup>	.54* F=3.6 DF=4,35	YRS AS FOREMAN <sup>-</sup> COLLEGE <sup>-</sup> YRS ON JOB <sup>+</sup> SEC SCH <sup>+</sup>
III STRUC'L TECH'L & BACKGROUND VARIABLES	.55* F=4.0 DF=3,38	YRS WKED FOR CO <sup>-</sup> COMP <sup>+</sup> SLW <sup>-</sup>	.39* F=3.5 DF=2,39	COMP <sup>+</sup>	.54* F=3.5 DF=4,35	YRS AS FOREMAN <sup>-</sup> COLLEGE <sup>-</sup> YRS ON JOB <sup>+</sup> SEC SCH <sup>+</sup>

- Notes: 1. "VARIABLES" indicates the independent variables that entered into the multiple regression equation have an F value which is significant at .05 level or better.
2. The '+' and '-' signs attached to the "VARIABLES" indicate the directions of the relationships.
3. \*\*p < 0.1; \*p < .05.
4. PSSS = perceived superior's supervisory style; COMP = task complexity; MMC = machine/man control; SOG = group size; SLW = skill level of workers; SEC SCH = secondary school education; YRS WKED FOR CO = the number of years worked for the company.
5. n.s. = non-significant.

it will be seen, nor do they on worker orientation. The reasons that patterned relationships were not borne out by the data are extremely interesting. Since we found that the relationships between worker orientation and the independent variables are similar to the findings about production orientation in this section, we shall attempt to explain these findings together after the data of worker orientation are presented shortly.

#### WORKER ORIENTATION:

Table V-6 presents the multiple correlations between the independent variables and worker orientation of foremen in three age groups. We can see that there is some advantage in looking at the age groups separately. However, the patterns seem to be unclear. In general, background variables have more influence on worker orientation of the old and the middle age groups. For the middle-aged foremen, the number of years worked for the company, the number of years on the job, and secondary school education are the major influencing factors of this dimension. The directions of these relationships do not seem to form a pattern. For example, both the number of years worked for the company and the number of years worked on the present job are the length of service variables. But one is negatively related to worker orientation, the other is positively related to it. The worker orientation of the young group does not seem to have a noticeable relationship with any of the independent variables.



TABLE V-6 MULTIPLE CORRELATIONS BETWEEN THE INDEPENDENT VARIABLES AND WORKER ORIENTATION, BY AGE GROUPS

	YOUNG GROUP		MIDDLE GROUP		OLD GROUP	
	39 or younger		40-49		50 or older	
	Mean = 15.84 s.d. = 2.54 n = 32		Mean = 16.26 s.d. = 2.18 n = 42		Mean = 15.52 s.d. = 2.19 n = 40	
	R	"VARIABLES"	R	"VARIABLES"	R	"VARIABLES"
I STRUC'L & TECH'L	.28 F=1.3 n.s. DF=2,29	PSSS <sup>-</sup>	.18 F=1.4 n.s. DF=1,40	SOG <sup>-</sup>	.34* F=4.9 DF=1,39	COMP <sup>+</sup>
II BACKGROUND VARIABLES	.25 F=2.0 n.s.	COLLEGE <sup>+</sup>	.60* F=3.4 n.s.	YRS WKED FOR CO <sup>-</sup> SEC SCH <sup>-</sup> YRS ON JOB <sup>+</sup>	.21 F=1.8 n.s. DF=1,38	YRS ON JOB <sup>+</sup>
III STRUC'L TECH'L & BACKGROUND	.36 F=2.2 n.s. DF=2,29	COLLEGE <sup>+</sup>	.60* F=4.1 DF=5,36	YRS WKED FOR CO <sup>-</sup> SEC SCH <sup>-</sup> YRS ON JOB <sup>+</sup>	.48* F=3.7 DF=3,36	COMP <sup>+</sup> YRS ON JOB <sup>+</sup>

Note: For the abbreviations, see the notes of Table V-5

#### DISCUSSION: WORKER ORIENTATION AND PRODUCTION ORIENTATION:

The influence of the independent variables on these dimensions are much less systematic than their influence on the dimensions of closeness and on time allocation, as will be seen. It may be possible that supervisory orientations are not affected by the factors investigated in

this study. It is also possible that the relationships are so complicated that they are extremely difficult to disentangle. In the following, some explanations are attempted.

Originally, we assumed that, within a given environment, a supervisor would be more or less worker-oriented or production-oriented. It was hypothesized that all the three structural variables (group size, perceived superior's supervisory style, and the skill level of the work group) and the two technological variables (task complexity and machine/man control) are positively correlated with worker orientation and negatively correlated with production orientation. It turned out that there is little pattern in the data. When age was controlled, still no patterns emerged. We then examined the percentages of the supervisors who agreed or disagreed with the individual items designed to measure the foremen's supervisory orientations. We found that the supervisors in the sample were almost equally worker-oriented and production-oriented (See Table V-7).

What is shown in the table is not in agreement with what we have learned from the literature. Management theory and research of the past two decades has focused on two supervisory behaviour styles, variously referred to as employee-oriented or production-oriented;<sup>2</sup> employee-

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<sup>2</sup>R.L. Kahn and D. Katz, "Leadership Practices in Relationship to Productivity and Morale," in D. Cartwright and A. Zander, (eds.), Group Dynamics: Research and Theory, New York: Harper and Row, pp. 612-627, 1960.

TABLE V-7 DISTRIBUTIONS OF THE FIRST-LINE SUPERVISORS'  
RESPONSES TO ITEMS 6, 7, 8, 10, 11, 12, 13, 14, 15

<u>ITEMS OF WORKER ORIENTATION</u>	<u>AGREE</u>	<u>DISAGREE</u>	<u>UNDECIDED</u>
6. Discuss policy with workers	87.7% (100)	9.6% (11)	2.6% (3)
*7. Looking after men is most important part of job	70.2 (80)	23.6 (27)	6.2 (7)
10. Go to bat for workers	58.8 (67)	29.8 (34)	11.4 (13)
11. Takes care of men's general welfare	91.2 (104)	2.6 ( 3)	6.2 ( 5)
12. Foremen are too busy to be concerned with men's general welfare	7.9 ( 9)	88.6 (101)	3.5 ( 4)

<u>ITEMS OF PRODUCTION ORIENTATION</u>	<u>AGREE</u>	<u>DISAGREE</u>	<u>UNDECIDED</u>
8. Keeping up production is most important part of job	65.8% (75)	26.3% (30)	7.9% ( 9)
13. Emphasizes dead-lines and targets of production	73.7 (84)	19.3 (22)	7.0 ( 8)
14. Criticizing poor work is an important part of job	93.9 (107)	3.5 ( 4)	2.6 ( 3)
15. Men work best when not under too much pressure	86.8 (99)	9.6 (11)	3.5 ( 4)

\*Item 7 was not included in the new scale because of its low  
factor loading in the factor analysis

centered or job-centered;<sup>3</sup> concern for people or concern for production;<sup>4</sup>

<sup>3</sup>R. Likert, New Patterns of Management, New York: McGraw-Hill, pp. 6-8, 1961.

<sup>4</sup>Blake, Robert R. and J.S. Mouton, The Managerial Grid. Houston: Gulf Publishing Co., pp. 8-9, 1964.

democratic or autocratic;<sup>5</sup> high least preferred co-worker or low least preferred co-worker;<sup>6</sup> and consideration or initiating structure.<sup>7</sup>

Although these pairs differ in their emphasis, these researchers basically describe two different types of supervisors: the one who is more concerned with people; the other who is more concerned with production. However, as shown by our data, supervisors may not neatly fit the typology. Most of the supervisors in the sample were almost equally worker-oriented and production-oriented. Furthermore, from the researcher's observation, most respondents appeared to be quite ambivalent in answering some of these questions, especially Question 7 (Looking after your men is the most important part of your job.) and Question 8 (Keeping production is the most important part of your job.). The foremen's ambivalent attitude towards workers and production is probably the reason why we were unable to discover patterned relationships between the independent variables and the foremen's supervisory orientations. The logical question, then, is why did they feel this ambivalence. The following are some possible answers.

- (1) Since the publication of the report of the Hawthorne studies

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<sup>5</sup>White, R. and R. Lippitt, "Leader Behaviour and Member Reaction in Three Social Climate," in D. Cartwright and Zander, op. cit., pp. 527-53.

<sup>6</sup>F.E. Fielder, A Theory of Leadership Effectiveness, New York: McGraw-Hill, pp. 36-62, 1967.

<sup>7</sup>E.A. Fleishman, E.F. Harris, and H.E. Burt, Leadership and Supervision, Ohio State Business Education Research Monograph, 1955.

in 1939,<sup>8</sup> and the studies of Kahn and Katz and their associates in the Survey Research Center of Michigan University<sup>9</sup> in the early 1950's, and many others,<sup>10</sup> human relations has been a dominant trend in managerial ideology in North America. Although it has been pointed out that the effectiveness of the human relations approach is subjected to structural and technological limitations,<sup>11</sup> nearly all training courses for supervisors after World War II have been advocating worker-oriented behaviour.<sup>12</sup> Most of the foremen have been given training in human relations in industry. It seems that management firmly believes that treating the workers as human beings, and not just as cogs in the productive

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<sup>8</sup>F.J. Roethlisberger and W.J. Dickson, Management and the Worker. Cambridge, Mass.: Harvard University Press, 1939.

<sup>9</sup>Katz, Maccoby, and Morse, op. cit.; Katz, Macooby, Gurin and Floor, op. cit.

<sup>10</sup>Likert, op. cit.; D. McGregor, The Human Side of Enterprise, New York: McGraw-Hill, 1960; Fleishman, "Leadership Climate, Human Relations Training, and Supervisory Behaviour," Personnel Psychology, 6:1:205-222, 1953; Fleishman, "The Description of Supervisory Behaviour," Journal of Applied Psychology, 37:1-6, 1953; Fleishman, Harris, and Burt, op. cit.; Fleishman and D.A. Peters, "Leadership Attitudes and Managerial Success," Personnel Psychology, 15:127-143, 1962.

<sup>11</sup>A. Etzioni, "Human Relations and the Foreman," Pacific Sociological Review, 33-38, 1958.

<sup>12</sup>T.H. Patten, Jr., The Foreman: The Forgotten Man of Management, American Management Association, Chapter VII, 1968.

machine, is far more effective in increasing productivity than anything else.<sup>13</sup> With this managerial ideology in background and the strong "indoctrination" of human relations in training, it is almost impossible for a supervisor to disagree with questions such as "A foreman should always take good care of the general welfare of the workers."<sup>14</sup>

However, production and profit are the major goals of industrial organizations. Making people happy is not. The human relations approach in supervision is only a means through which to achieve this ultimate goal, or, put in their vernacular: "To make a dollar." It is possible that the ambivalence of the supervisors is rooted in the tension between the goal and the means of attaining it.

In answering Question 7 (Looking after your men is the most important part of your job.), a production foreman said, "I agree - in the sense that this will achieve objections [sic]."

The foreman of the Heat Treat Department in Company E commented, while he was answering Questions 7 and 8 (Keeping up Production is the most important part of your job.):

"I strongly agree with both questions. Although production is most important, it is the men who perform it."

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<sup>13</sup>A. Korman, "'Consideration,' 'Initiating Structure,' and Organizational Criteria - A Review," Personnel Psychology, 19:334-361, 1966.

<sup>14</sup>Thurley and Hamblin reported that most of the supervisors they studied expressed the opinion that the personal problems and general welfare of the workers were "one of their main concerns." But the amount of time spent on these matters indicated that, in practice, such responsibilities had a low priority. See K.E. Thurley and A.C. Hamblin, The Supervisor and His Job. London: H.M.S.O., 1963.

The responses of the foreman of the Wire Mill of Company E is probably most typical of the ambivalent attitude of the supervisors toward people and production. His answer to Question 7 was "Undecided." He commented:

"The most important is output of a quality product which cannot be done without a good relationship with your people."

(2) The fact that the supervisors in our sample tend to be equally worker-oriented and production-oriented could be a reflection of the selection process. Pigors and Myers pointed out that first-line supervisors have been held accountable for meeting requirements which can be stated as two (related) imperatives: (a) to get out production; to do that, [a foreman must] (b) motivate production workers so that they will subordinate their personal goal to organization-wide objectives.<sup>15</sup> Since management requires the first-line supervisors to realize these two imperatives, it tends to select potential supervisors with a balance of both production and worker orientations. The foremen's emphasis on people and production could very well be a reflection of the criteria of the recruitment of supervisors of the industries participating in the research project. We have no documents to support this statement. However, the informal interviews with the general foremen did reveal that a balanced orientation toward production and the workers is indeed an asset for a candidate for foremanship. The general foremen were asked:

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<sup>15</sup>p. Pigors and C. Myers, Personnel Administration: A Point of View and Methods, 6th ed., New York: McGraw-Hill, p. 203, 1969.

"If there is a vacancy for a foreman, what kind of person will you be looking for?" The answers vary in length and in the number of items mentioned, but an emphasis on the two elements is invariably present. Here are some of the answers.

A general foreman in Company B said,

1. He should have the technical competence.
2. He should have strong achievement motivation.  
("To achieve what?" "Production!")
3. He should be able to get along with people.
4. Seniority - not determining.
5. Language facilities.
6. He should be versatile - not too specialized.

A general foreman in Company C looks for these characteristics in a prospective foreman:

1. He should be calm; not easy to get excited.
2. He is people-oriented.
3. He is technically capable to do his job.
4. He is enthusiastic, dependable, and aggressive.
5. He has a time-following habit.
6. He identifies himself with the company.
7. He is able to work with people to get the production out.

Finally, a general foreman in Company F said that the kind of person he would be looking for

1. is a good listener;
2. is honest and fair;
3. treats workers as individuals;
4. can get the best work out of people.

(3) The fact that the supervisors participated in the research project appeared to be equally production-oriented and worker-oriented could also be a result of role conflict. The foreman has often been



described as the "man in the middle,"<sup>16</sup> a marginal man,<sup>17</sup> a victim of double talk,<sup>18</sup> or the "forgotten man."<sup>19</sup> On the organizational chart he is the last link in the authority line. He is supposed to be the "key man of production." But, on the other hand, under human relations approach of management, the foreman is expected to become a leader. He is expected to increase the workers' commitment to the factory, its management and its objectives; to reduce griping, strikes, absenteeism, and turnover. In doing this, he has to come closer to the workers and is more involved in personal relations with them. However, this strains his loyalty to management.<sup>20</sup> Furthermore, the workers perceive the foreman as an instrument of management and some degree of resentment goes with this view. Yet the workers also expect their foreman to be a buffer between the higher echelons of the organizations and themselves. All these conflicting expectations make the foreman's role all the more complicated. The implications of the role conflict the foreman experiences

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<sup>16</sup>W.F. Whyte and B. Bardner, "The Man in the Middle," Applied Anthropology, 4:1-28, 1945.

<sup>17</sup>Donald E. Wray, "Marginal Man in Industry: The Foreman," American Journal of Sociology, 49:298-301, 1944.

<sup>18</sup>F.J. Roethlisberger, "The Foreman: Master and Victim of Double Talk," Harvard Business Review, 23:3:283-298, 1945.

<sup>19</sup>Patten, op. cit.

<sup>20</sup>Etzioni, op. cit., p. 36.

is beyond the scope of this study,<sup>21</sup> but it seems reasonable to say that it is one of the reasons that account for the foremen's ambivalent attitudes toward production and the workers.

#### CLOSENESS:

Table V-8 indicates that there is a decisive advantage in looking at each age group separately for the analysis. The most significant finding is that the major determinants of the closeness for the young and the old age groups are the structural and the technological variables and for the middle age group, are the background variables (see Row III). The collective influence of the independent variables on closeness is the strongest for the young age group ( $R = .69^*$ ), next for the oldest group ( $R = .62^*$ ), and the weakest for the middle age group ( $R = .52^*$ ). It should be noted that when the total sample was analyzed, group size was not found to be correlated with supervisory style. However, when the foremen are divided into age groups, group size and complexity are found to be the major factors in influencing the degree of closeness of the young and old foremen's supervision. While both group size and task complexity are negatively correlated with the young group, they are positively correlated

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<sup>21</sup>For discussions of the implications, see Etzioni, Loc. cit.; D.C. Miller and W.H. Form, Industrial Sociology: The Sociology of Work Organizations, 2nd ed., New York: Harper & Row, pp. 205-222, 1964. D.C. Miller, "Supervisors: Evolution of an Organizational Role," in R. Dubin, G.C. Homans, F.C. Mann, and D.C. Miller, Leadership and Productivity: Some Facts of Industrial Life, San Francisco, Calif.: Chandler, pp. 104-122, 1965.

TABLE V-8 MULTIPLE CORRELATION BETWEEN THE INDEPENDENT VARIABLES AND CLOSENESS, BY AGE GROUPS

	YOUNG GROUP		MIDDLE GROUP		OLD GROUP	
	39 or younger		40-49		50 or older	
	Mean = 9.43 s.d. = 2.32 n = 32		Mean = 8.57 s.d. = 2.31 n = 42		Mean = 6.70 s.d. = 2.32 n = 40	
	R	"VARIABLES"	R	"VARIABLES"	R	"VARIABLES"
I STRUC'L & TECH'L VARIABLES	.58* F=3.3 DF=4,27	COMP <sup>-</sup> SOG <sup>-</sup>	.21 F=1.9 n.s. DF=1,40	PSSS <sup>-</sup>	.58* F=4.4 DF=4,35	PSSS <sup>-</sup> SOG <sup>-</sup> COMP <sup>+</sup>
II BACKGROUND VARIABLES	.23 F=1.7 n.s. DF=1,30	YRS AS FOREMAN <sup>+</sup>	.43* F=2.8 DF=3,38	YRS AS FOREMAN <sup>+</sup> SEC SCH <sup>-</sup>	.16 F=1.0 n.s. DF=1,38	YRS AS FOREMAN <sup>+</sup>
III STRUC'L, TECH'L & BACKGROUND VARIABLES	.69* F=4.0 DF=6,25	COMP <sup>+</sup> SOG <sup>-</sup> YRS WKED FOR CO <sup>+</sup> SEC SCH <sup>-</sup>	.52* F=3.5 DF=4,37	YRS AS FOREMAN <sup>+</sup> YRS WKED FOR CO <sup>+</sup> SEC SCH <sup>-</sup> PSSS <sup>-</sup>	.62* F=4.0 DF=5,34	PSSS <sup>-</sup> SOG <sup>+</sup> COMP <sup>+</sup> SEC SCH <sup>-</sup>

Note: For abbreviations, see the notes of Table V-5

with the old group.

The strongest variable accounting for the variance of closeness of the old foremen's style is perceived superior's style (PSSS). Although the other variables, group size (SOG), task complexity (COMP), and secondary

school education (SEC SCH), also have some influence, it is considerably smaller. The beta weight of PSSS is  $-.601$ , which is much larger than those of the other three variables (SOG  $.370$ ; COMP  $.311$ ; SEC SCH  $-.208$ ). Thus, it is clear that the degree of closeness an old foreman supervises is mainly influenced by his perception of his immediate superior's style. The negative correlation indicates that if he thinks that he himself is not closely supervised (high PSSS score), he is most likely to control his workers less closely (low closeness score).

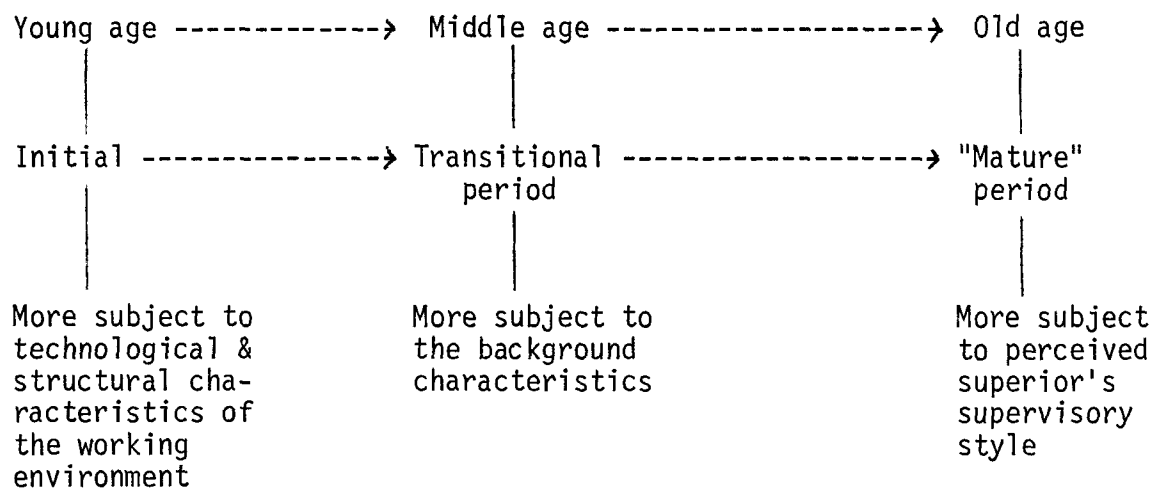
For the middle age group, the two major influencing variables are the number of years as foreman and the number of years worked for the company. They are all positively correlated with the degree of closeness of this group of foremen. The longer a foreman works for a company, the more likely that he would supervise closely.

To sum up the findings, it appears that a pattern has emerged from the analysis. The young and the old age groups are different from the foremen of the middle age group. While the closeness of supervision of the middle age group is more susceptible to the effect of some of the length of service variables (the number of years as foreman, the number of years worked for the company), the "young" and the "old" foremen are more likely to be influenced by some structural and technological variables (complexity of task, group size, and perceived superior's supervisory style).

However, difference also exists between the young and the old age groups. While the degree of closeness to which the "young" and the "old" foremen supervise their workers is affected by some structural and

technological variables, perceived superior's style is the one that differentiated the old from the young. The older foreman is more susceptible to his subjective view of his superior's style. The closeness of the young age group's supervision appears to be more explained by the characteristics of their working environment; that is, the complexity of the tasks the group is assigned to do and the number of workers under supervision.

A partial explanation of the differences between the age groups may be viewed as a socialization process of foremen in industry. The following model seems to be indicated by the data:



If this model approximates the 'career' of a foreman's supervisory style in industry, we will have to ask why this is so, and what are the theoretical and/or practical implications of this finding. Explanations are attempted in the following paragraphs.

The transmittal of supervisory styles has been observed and reported in many previous studies: the studies of railroad workers and of

office workers by Katz and associates,<sup>22</sup> Fleishman's study of leadership and supervision in industry,<sup>23</sup> and Leavitt's pointed remark that to a greater or lesser extent, any assigned job becomes two jobs: one job is to carry out the assignment, the other is to please the superior.<sup>24</sup> All indicated that lower ranking managers tend to imitate the supervisory style of their superiors. But none of these studies has pointed out the role that age plays in this phenomenon. In the "transitional model," the three age groups may be considered as a historical continuum in terms of one foreman. The way he exercises his authority changes through the years in respect to his responses to some of the influencing factors in his environment. The first few years in a foreman's career can be called the initial period. (We should not consider the age groups as operationally defined in this study too rigidly.) In this period, he is not far from his formal training and he is less aware of the "politics" of the industrial world. Thus, he tends to be more responsive to the "formal"

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<sup>22</sup>D. Katz, N. Maccoby, and N.C. Morse, Productivity, Supervision and Morale in An Office Situation, Detroit: The Darel Press, 1950; D. Katz, N. Maccoby, G. Gurin, and L.G. Floor, Productivity, Supervision, and Morale among Railroad Workers, Franklin Dekleine Co., 1951; R.H. Guest, Organizational Change and the Successful Leader, unpublished Doctoral Dissertation, Columbia University, 1960, cited by A. Etzioni in his A Comparative Analysis of Comparative Organizations, New York: The Free Press, p. 309, 1961.

<sup>23</sup>Fleishman, and Burt, op. cit.

<sup>24</sup>Harold Leavitt, Managerial Psychology, The University of Chicago Press, pp. 367-68, 1964.

requirements. In other words, he does what the work requires him to do. As time goes by, he accumulates more experience and gets into a transitional period. In this period, as reflected by the data, the length of service variables have more influence than the technological factors on his selection of supervisory styles. For this group of foremen, the longer he works for the company and/or the longer he works as a foreman, the stronger the tendency to practice close supervision. And finally, the foreman reaches a point which may be called the "mature" period. By this time he has learned the web of the intricate relations in his environment. He knows "the score", so to speak. The technological and other structural variables of course still exert influence on his selection of supervisory style. However, his superior's style as he perceives it carries more weight in making his choice of his own supervisory style. In other words, to achieve production is of course important; but to achieve the goals in the way he thinks that is his superior's way seems to be more important.

In brief, the supervisory style a foreman adopts has been viewed as the end product of the interaction of the structural, technological, and background variables. Some factors have more influence than others on a foreman's selection of supervisory style at different stages of his career. Some remarks made by some of the foremen who participated in the present study are illustrative for our discussion above. One young foreman, a college graduate, in Company A said:

I know I am not as experienced as the old guys. But I know the technical aspect of the job enough to be in my position. And I have great potential. When Doug (the plant manager) asked me the other day about my aspiration in this company, I told him

plainly that I'd like to sit on his chair some day.

What an older and outspoken foreman in Company F told the interviewer about one of his colleagues, who is also a young fellow graduated from a community college not long ago, is most illustrative for our discussion about the old age group:

Roger is a typical book worm. He has been trying hard to apply the stuff he learned in school. But it doesn't work. Theory is one thing; reality is another. It is what the bosses say that counts in this place, not what the books say. Sooner or later he'll learn his lessons.

Although we believe that the above interpretation, strengthened with illustrations, of the "transitional model" is a reasonable one, it still has to be considered as tentative. There is no evidence that, when the foremen in the young group go through the age periods, they will be affected by the same variables in their supervision as their older contemporaries. We shall return to this methodological point shortly.

An alternative interpretation of the data is related to the perceived basis of job security. While most of the industries stress experience of their staff, they need competent and potential young people for organizational development. The better trained young foremen, as the one mentioned above, feel that they have the potential the company needed. They therefore tend to be more sensitive to the technical aspect rather than the social aspect of the job.

The old foremen are in a precarious position. Their situation is precarious not only because of the mere fact of age, but also because their technical knowledge is usually obsolete and they have little potential to adjust to the new. In many cases, the only factor which keeps an old



foreman in his position is his seniority. It is possible that such a foreman may rely more on his authority of position to compensate his weak authority of competence, But it is more likely that he is more acquiescent to his superior. There is some evidence that only those who are qualified for full pension benefits are less sensitive to their superior's supervisory style. When one of such foremen in Company A was asked whether is he much influenced by his immediate superior, he responded in this way: "Jim (his immediate superior) is kind of authoritarian. I don't pay too much attention to him. I can walk out of this plant any time with full pension." Based on the above discussion, it is hypothesized that the perceived basis of job security changes, with age, from technical competence to the length of service, to acquiescence to superior, the latter stage reflecting a recognition of the precarious position of the older foremen.

As for the middle-aged foremen while their technical knowledge may not be as up to date as their younger colleagues, they have accumulated seniority and experience. They feel secure about their jobs for no organization can afford to lose experienced and potential personnel.

We now turn to explain the reason why the first interpretation of the "transitional model" was considered tentative, although, from a viewpoint of organization theory, we believe it is a reasonable one. The technique we used was cross-sectional analysis which infers change from comparisons of different age groups of foremen measured at the same point of time. It is a commonly used technique in social sciences because it enables the researcher to make a more rapid analysis and

presentation of the results. It is also easier and less expensive, in terms of time and other resources, to administer.

While cross-sectional studies have these advantages, their disadvantage is the risky assumption that time exerts little influence. A solution to this difficulty would be a panel study, one measuring the supervisory styles of the same foremen at two different times of their careers. A combined design incorporating the best of both cross-sectional and panel studies, which provides answers to a greater number of research questions, is even better. However, both of these approaches were impractical in this study, given the limitations of time and other resources. Our knowledge of supervision can be greatly enhanced by future research along the line suggested.

#### TIME ALLOCATION:

Table V-9 presents the multiple correlations between the independent variables and the way the foremen allocate their time.

The collective influence of all the independent variables on time allocation is the highest ( $R = .83^{**}$ ) for the young foremen, next for the middle age group ( $R = .54^{*}$ ), and the weakest ( $R = .52^{*}$ ) for the oldest group. The major contributing variables, in Row III, show that the structural and the technological variables have a stronger influence than background variables on this dimension for all the three age groups.

For the young age group, complexity is positively correlated with this dimension of supervisory style. This indicates that the more complex the task, the more time the foremen spend on office work. It should be

TABLE V-9 MULTIPLE CORRELATION BETWEEN THE INDEPENDENT VARIABLES  
AND TIME ALLOCATION, BY AGE GROUPS

	YOUNG GROUP		MIDDLE GROUP		OLD GROUP	
	39 or younger		40-49		50 or older	
	Mean = 4.18 s.d. = 1.69 n = 32		Mean = 4.35 s.d. = 1.69 n = 42		Mean = 4.35 s.d. = 1.64 n = 40	
	R	"VARIABLES"	R	"VARIABLES"	R	"VARIABLES"
I STRUC'L & TECH'L VARIABLES	.75* F=6.8 DF=5,26	COMP <sup>+</sup> SOG <sup>-</sup>	.50* F=4.3 DF=3,38	SOG <sup>+</sup> COMP <sup>+</sup>	.24 F=2.3 n.s. DF=1,38	SLW <sup>+</sup>
II BACKGROUND VARIABLES	.27 F=2.5 n.s. DF=1,30	TRADE SCH <sup>+</sup>	.38* F=3.2 DF=2,39	SEC SCH <sup>+</sup> YRS AS FOREMAN <sup>-</sup>	.20 F=1.7 DF=1,38	YRS WKED FOR CO <sup>-</sup>
III STRUC'L TECH'L & BACKGROUND VARIABLES	.83** F=4.1 DF=11,20	COMP <sup>+</sup> SOG <sup>-</sup>	.54* F=4.0 DF=4,37	SOG <sup>+</sup> COMP <sup>+</sup> SEC SCH <sup>+</sup>	.52* F=3.0 DF=4,37	SLW <sup>+</sup> YRS ON JOB <sup>+</sup> YRS AS FOREMAN <sup>+</sup>

Note: For the abbreviations, see the note of Table V-5.

remembered that complexity as defined in this study means the number of crews in the group, and the number of operations required to complete a product, and the variability of the tasks of the group. If a task includes many operations, and/or there are many crews in the group, and the nature of the tasks of a group changes from time to time, two things must be crucial in this situation for the foreman to carry out his task successfully: The one is planning, the other, coordination, and planning

is probably the more important one. Once the work is carefully planned, to coordinate the operations or crews is relatively easy. It is, therefore, reasonable for the foreman with complex tasks to spend more time on office work, especially planning.

Group size is negatively correlated with this dimension of the young foremen's supervisory style. If a group is large, the members of the group may be scattered over a large space. Even if the foreman of the group does exercise bureaucratic supervision, just to walk through the shop for a routine inspection may take a considerable portion of his time.

The explanation of the negative relationship between the size of time allocation for the young group seems to be a reasonable one. However, we did not find consistent results for the middle age group.

#### DISCUSSION: TIME ALLOCATION:

The dimension of time allocation was measured by two items: the proportions of time spent on office work and on the shop floor. The analysis indicated that the way a foreman allocates his time is mainly determined by some of the structural and technological variables of his environment: group size, task complexity, the skill level of the work group, and machine/man control. Although education and the length of service variables also appeared as contributing variables, their contributions to the amount of variance were relatively small. Age does not seem to be related to time allocation, although it is clearly a differentiating factor of closeness of supervision.

The tendency for time allocation to be affected more by the structural and technological variables can be accounted for by the following reasons:

(1) When the skill level of the work group is high and when the workers are not machine paced, close supervision (i.e., to spend more time on the shop floor) is either not needed or impossible. As we have discussed and documented in Chapter IV, skilled workers are trained to take responsibilities. In doing their jobs, they expected to use their judgement and make certain decisions. They therefore do not need to, and should not, be supervised closely. In addition, exactly because judgement is involved in a skilled worker's job, work standards cannot be set up with precision. And, in many cases, their jobs are done in different locations in the plant. It is almost impossible for the foreman to watch them working on the floor.

(2) The amount of paper work increases when there are more workers in a group and when the tasks are more complex. As indicated previously, when the tasks are more complex, they require careful planning and better coordination. The achievement of the latter is probably based on the former. Once the planning is well done, coordination could be achieved without much difficulty.

Historically, foremen in industries, in general, spend much more time in their offices than their predecessors a generation ago. Miller reported that in modern industries "paperwork became so heavy that the

foreman began to complain that he couldn't get out on the floor.<sup>25</sup>

Many foremen who participated in this study also complained that they would like to spend more time on the floor, but they could not for there is paperwork which has to be done.

### SUMMARY

In this chapter, a detailed analysis of the dynamics of supervision was undertaken. Each item of the measurement of supervisory style was analyzed in terms of three age groups: young (23-39), middle (40-49), and old (50-62). Multiple regression was used to obtain the collective influence of the structural, technological, and the background variables.

It was found that closeness of supervision of the three age groups of supervisors is influenced by different variables. The young foremen are more influenced by task complexity, machine/man control, skill level of the work group, and group size. The length of service variables have more effect on the middle-aged foremen. The old ones are most significantly effected by their perception of their superior's style. Based on these findings, a "transitional model" was developed. A "maturational" and a "job security" explanation were considered.

The analysis revealed that the supervisors were almost equally oriented toward the workers and production. This finding is not in agreement with previous findings appeared in the literature. Three explanations were attempted: (1) The supervisors' ambivalent attitudes toward

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<sup>25</sup>D.C. Miller, in Dubin et al., op. cit., p. 111.

the workers and production may be rooted in the tension of the goal (production) and the means (human relations approach to supervision) for attaining it in modern industrial organizations. (2) The consequence of the selection (of foremen) process. Only candidates with a balance of both worker orientation and production orientation tend to be selected. (3) Role conflict experienced by foremen in industrial organizations may be one of the reasons which account for their ambivalent attitude.

The data showed that time allocation is mainly influenced by the technological variables. Supervisors of groups of high skill level and with complex tasks tend to spend more time in the office doing planning related work. While bureaucratic supervision is not necessary or impossible for skilled workers, planning tend to be more important, when the tasks are more complex.

## Chapter VI

### SUMMARY AND CONCLUSIONS

The purposes of this chapter are to review the study as a whole, to discuss the implications of the major findings, and, finally, to examine authority relationships in a perspective of social change. Social scientists have long been seeking to understand the relationship between styles of supervision and worker performance and satisfaction. More recently, however, emphasis of research interest has shifted to a different level of inquiry: the causes of variations in supervisory behaviour. Some researchers seek, from different approaches, to answer the question why the occupant of a supervisory position exercises his authority in a certain way. The present study may be identified with this evolving interest in the literature of organizational studies.

Supervisory behaviour can be studied from different perspectives. Some psychologists are mainly concerned with the effect of an individual's personality traits.<sup>1</sup> For example, supervisors, categorized as authoritarian,

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<sup>1</sup>For extensive reviews of the trait approach to the study of leadership, see R. Stogdill, "Personal Factors Associated with Leadership: a Survey of the Literature," Journal of Psychology, 25:35-71, 1948; R.D. Mann, "A Review of the Relationships between Personality and Performance in Small Groups," Psychological Bulletin, 56:241-270, 1959; Cecil A. Gibb, "Leadership," in Gardner Lindsey and Elliot Aronson (eds.) The Handbook of Social Psychology, Vol. IV, Reading, Mass.: Addison-Wesley, pp. 205-282, 1968-1969.



tend to be rigid, decisive, paternalistic, strict rather than easy with their subordinates, and so on. Others maintain that a person's (or a group's) values govern his (its) behaviour. In a Weberian approach, Blau suggests that a value orientation that defines the exercise of social control must arise to legitimize the authority of the superior. By this token, a different value orientation may undermine the authority of the same superior.<sup>2</sup> Similarly, were Kluckhohn to study organizational behaviour, she might argue that the way a supervisor exercises his authority is to some extent determined by his dominant as well as his variant value orientations.<sup>3</sup> Still others utilize a cultural model. Crozier, for example, considers the traits of interpersonal and intergroup relationships, such as the isolation of the individual, the predominance of formal over informal activities, and the isolation of strata, in French bureaucratic organizations as manifestations of "permanent French cultural traits."<sup>4</sup>

The perspective taken in this study assumed that organizational behaviour is influenced by some environmental factors, such as the social structure and technology of the work situation, which are independent of the organizational members, and by such background variables, as age, education, and the length of service, which are socially interpreted in social

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<sup>2</sup>Peter Blau and W. Richard Scott, Formal Organizations, San Francisco, California: Chandler, pp. 27-32, 1962.

<sup>3</sup>Florence R. Kluckhohn and Fred L. Strodbeck, Variations in Value Orientations, New York: Row, Peterson & Co., 1961.

<sup>4</sup>M. Crozier, The Bureaucratic Phenomenon, Chicago: The University of Chicago Press, p. 213 ff., 1964.

interaction. In the case of a supervisor, it is held that the way he performs his role is the product of the interaction of the three general factors: social structure, technology, and background characteristics.

The present research was particularly designed to assess the effects of the three factors mentioned above. Although the objective was not to compare or appraise the relative strength of the various perspectives used to explain supervisory behaviour, the results of the analysis do show that the perspective adopted in the present study cannot be ignored in any attempt to explain supervisory behaviour.

From the viewpoint of role theory, it was argued that supervisory behaviour can vary along four dimensions: production orientation, worker orientation, closeness, and time allocation. The influencing factors were considered as constraints which limit the supervisor's freedom to vary his methods of exercising his authority along these dimensions.

In the following, we shall review the study generally, and, then, discuss the implications of the major findings.

It has been stated that the superior-subordinate relationship is conceived as a role system in which the behaviour of the incumbent of any position is supposed to meet the shared expectations of other incumbents of roles in the system. In highly structured hierarchical organizations, while role expectations are more likely to be based on knowledge of standard prescriptions for the office one holds, it might be expected that all persons in a group might not have the same expectations about a given role. For example, in a work group, while some workers may prefer humanistic supervision, so that they would not be closely controlled and have more chances

to use their initiative, others may prefer bureaucratic supervision, so that they do not have to assume any responsibilities. Similarly, foreman behaviour as perceived by the workers and objective criteria of foreman behaviour may be at variance which may cause conflict between the supervisor and the supervised. All of these examples show that perceptions of the workers would have some impact upon supervisory behaviour. The importance of this point is clearly recognized. However, because of the failure to obtain the cooperation of the participating organizations and the union to elicit information from the workers, this study is solely based on the perceptions of the supervisors.

As stated previously, we are mainly concerned with the factors which influence the style of supervision. Although not all of our hypotheses were strongly supported by the data, the findings did reveal which of the variables investigated have more effect upon what dimensions of supervisory style. For example, our transitional model draws attention to the interaction between age and the closeness of supervision. Also, it was found that time allocation is positively related to task complexity. These findings are of considerable interest and importance.

However, a manager may want to know, for instance, if in groups whose tasks are equally complex, and if some supervisors of these groups spend more time on office work, would their productivity be higher than those supervisors who spend less time on office work? In other words, by asking the question, this manager is trying to link the causes to the consequences of supervisory style, so that he would be able to predict, other things being equal, which style would be more efficient under specific

conditions. To answer this type of question is beyond the design of this research. Further studies using a comparative approach may be able to provide this link. For example, by comparing the supervisory styles and group effectiveness of foremen whose departments are as nearly comparable as possible, one may be able, at least partially, to answer practical questions like the one asked above.

Finally, some remarks about the method used to collect the data should be made. As has been reported, personal interviews were conducted to gather the data. This method was a time-consuming but productive procedure. First of all, it ensured high return rates (97.6% in our case), but more importantly, it provided opportunities for the interviewer to observe the respondents, to ask follow-up questions, and to have informal conversations, before and after the formal interview, with the informants, which often revealed insightful information. It is impractical, however, when large samples are required.

When a large sample is required, self-enumerated questionnaires may be used as those are easier to administer and relatively less time-consuming. However, a notorious shortcoming of this method is its low return rate. Selltiz and others reported that when questionnaires are mailed to a random sample of the population, the proportion of returns is usually low, varying from 10 to 50 percent.<sup>5</sup> Administering questionnaires to a group of people directly can ensure a high return rate as

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<sup>5</sup>Claire Selltiz, Marie Johoda, Morton Deutsch, and Stuart W. Cook, *Research Methods in Social Relations*, New York: Holt, Rinehart, and Winston, rev. ed., pp. 241-242, 1959.

well as save time. But this method does not have the advantages of the one used in this study.

Some researchers collect their data by direct observation of actual behaviour in the workplace. The Supervisor and His Job by Thurley and Hamblin is such an example.<sup>6</sup> However, sociologists usually use this method when they are especially interested in understanding a particular organization or substantive problem rather than demonstrating relations between abstractly defined variables. This does not mean that direct observation cannot be used to test a priori hypotheses. But it is typically not the case.<sup>7</sup>

We shall now turn to discuss the major findings of this study. Three major conclusions can be derived from the analysis of the data: (1) The factors that influence closeness of supervision differ from age group to age group. While the young foremen are more responsive to task complexity, skill level of the work group, and so on, their older peers are more influenced by their perception of their superior's style. This pattern has been labelled as the "transitional model." (2) Most supervisors appear to be equally oriented toward their workers and production. The three sets of independent variables do not seem to have significant influence on either of the two dimensions. (3) The way the supervisors

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<sup>6</sup>K.E. Thurley and A.C. Hamblin, The Supervisor and His Job, London: Her Majesty's Stationery Office, 1963.

<sup>7</sup>Howard Becker, "Problems of Inference and Proof in Participant Observation," in his Sociological Work: Method and Substance, Chicago: Aldine Publishing Co., p. 26, 1970.

allocate their time is mainly determined by technological variables. While the relationship between time allocation and technology seem to be clear cut, the implications of the first two conclusions need to be discussed.

The transitional model draws attention to the significance of age and other background variables; or, to borrow a term from Gouldner, to "latent identities."<sup>8</sup> When a person is a supervisor, he/she is also a "male" supervisor or "female" supervisor, an "old" or a "young" supervisor, a "Scot" or an "Italian." While these latent identities may not be culturally prescribed by group norms governing their manifest roles, latently, they do have meaning in social interaction. They thus exert pressure upon the manifest roles.<sup>9</sup> It seems clear that these factors have significant influence on supervisory behaviour as they do upon organizational commitment.<sup>10</sup> However, the significance of these factors has been almost entirely neglected by researchers in this area.<sup>11</sup> Although the sample used in this study was quite homogeneous in many aspects, such as sex, marital status, place of birth, and so on, the variable of

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<sup>8</sup>Alvin W. Gouldner, "Cosmopolitan and Locals: Toward an Analysis of Latent Social Roles," Administrative Science Quarterly, 2:281-306 and 444-480, 1957-58.

<sup>9</sup>Op. cit.

<sup>10</sup>Howard S. Becker, "Notes on the Concept of Commitment," in his Sociological Work: Method and Substance, Chicago: Aldine Publishing Co., p. 271, 1970.

<sup>11</sup>See the review of the literature in Chapter II.

age did reveal significant differences in supervisory behaviour. It is possible, then, that variations of other background characteristics may also have significant influence on organizational behaviour and future research on organizational behaviour should not neglect the effect of latent indentities.

Secondly, the transitional model indicates that while both technical and social expertise are important to the supervisors, or any incumbents of supervisory positions, they are emphasized differently by supervisors of different age. The young foremen, especially those better-educated foremen, tend to emphasize more the potential of their technical knowledge. The old ones, on the contrary, tend to pay more attention to the social aspect of their job, especially their relationship with their superior. This shift of emphasis through the years may be conceived as an indication of the nature of organizational socialization. Being structured bureaucratically, industrial organizations emphasize hierarchical authority as much as any other kinds of bureaucracies, although there are attempts to make it less visible.<sup>12</sup> It is possible that the longer one works in an industrial organization, the more he is aware of the significance of authority through subtle social conditioning.

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<sup>12</sup>Harrington gives a vivid, impressionistic account of life in a corporation governed by manipulated consent. This kind of manipulation are to make the organization look more democratic; to make authority less visible. See Alan Harrington, Life in a Crystal Palace, New York: Knopf, 1959. Blau's description of "strategic leniency" can also be viewed as some of the ways to make hierarchical authority less visible. See Peter Blau, Bureaucracy in Modern Society, New York: Random House, pp. 70-79, 1956.

The shift of emphasis may be further interpreted in terms of the notion of power relationships. The relationship between a foreman and his employing organization is quite similar to that between certain professionals, such as accountants, and their "patron" corporations.<sup>13</sup> The range of a foreman's skills is limited and most likely nontransferable. His dependency upon the employing organization is high. The social aspect of the job is therefore more salient and knowing the ropes becomes very important. Other factors, such as the loss of seniority and pension rights, in the event of a job change, the trouble of learning a new set of ropes, the loss of ease in doing his work because of his success in adjusting to the particular conditions of the present job, the loss of ease in domestic living consequent on having to move his household, and so on, though more general, might also be some of the factors which account for the older foremen's acquiescence to their employing organizations.

Although the implications of the influence of age have been elaborated in the above discussion, no narrow deterministic view is implied.

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<sup>13</sup>Johnson argued that there are three types of occupational control: collegiate, patronage, and mediation. In industrial societies, many occupations are under corporate patronage which has been associated with the growth of bureaucratic organizations in industrial societies, creating conditions in which the demand for many occupational services comes increasingly from a declining number of corporations, both private and public. The significance of corporate patron for any occupation is determined by the degree to which practice is not occupationally defined, but is imposed by the needs and definitions of clients - the employing organizations. See Terence J. Johnson, Professions and Power, London: The Macmillan Press Ltd., pp. 63-74, 1972.



It also should be pointed out that we do not intend to oversimplify the behaviour patterns of the young and the old foremen as indicated by the data. For example, while the dependency of most foremen upon their employing organizations is high, it may not be the case for some craftsmen foremen whose skills are rare but transferrable. The deciding factors such as the nature of the work group (e.g., the workers' age, sex, training, experience, and so on), the personality of the supervisor himself, general company policy, labour relations in the organization,<sup>14</sup> the market situation,<sup>15</sup> and the conditions of the job market, may all have some degree of influence.

To illustrate the impact of some of the factors mentioned, we cite the case of an "old-timer" below. Mr. Halsey was the foreman of the die-casting department in Plant 10 of the National Manufacturing Company. While he was unquestionably capable in the technical aspects of his job, he was very weak in administration and human relations. His supervisory style was extremely "old-line," i.e., authoritarian. He was not aware of organizational change in general and paid no attention to the union local in the plant. His superior and the personnel department tried and failed to get him "to fall in line." One of the reasons accountable for Halsey's uncooperative attitude is that there was no difficulty for a

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<sup>14</sup>D. Wedderburn and R. Crompton, Workers' Attitudes and Technology, Cambridge Press, 1972.

<sup>15</sup>T. Burns and G.M. Staker, The Management of Innovation, London Tavistock, 1961.

good die caster to find a job in those days. Therefore, his dependency on the company was very low. And Halsey did get another position as foreman of a die-casting establishment without even notifying National Manufacturing Company.<sup>16</sup>

It is not difficult to imagine that if a foreman could resign with full pension at any time and he decided not to do a good job, the authority the supervisor has over him would diminish. Of course these are relatively rare cases. However, there seem to be enough cases to demonstrate that the conditions of the job market and the supervisor's dependency upon the employer are possible determining factors of supervisory style.

We turn now to discuss the implications of the second major finding. Contrary to what we have learned from the literature, we have found that most supervisors are almost equally oriented toward making production quotas and taking care of the welfare of their subordinates. It has also been found, from observation during the interview sessions, that the foremen were quite hesitant to answer questions about whether keeping up with production or taking care of the general welfare of their workers was the most important part of their job. Three explanations have been suggested for the foremen's ambivalence and hesitancy. While current managerial ideology emphasizes the responsibility for the welfare of the men (human relations approach of supervision), the primary goal of

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<sup>16</sup>The case was cited by P. Pigors and C.A. Myers, Personnel Administration: A Point of View and Method, 6th ed., New York: McGraw-Hill, pp. 655-667, 1969.

industrial organizations after all is production. Thus, supervisors are always confronted with the tension between the goal and the means. The tension could be partially accountable for the foremen's attitudes. The second possibility is the consequence of the selection process. The management may have a tendency to promote (or recruit) those candidates who have some degree of balance between worker orientation and production orientation. Lastly, being caught in the middle of competing demands, the foremen experience considerable role conflict. This also may be one of the determinants of their attitudes toward workers and production.

In addition to the above explanations, we can make some general statements about production and worker orientations. Generally speaking, there are two basic elements in an industrial organization: production and people. Production is the goal of the organization. People are to achieve the goal. Supervision brings people and production together; that is, to direct people to utilize other resources to achieve the production goal. If there is not a collective goal to produce things, there would not be any organization. If there are no people, the goal cannot be achieved (given the present state of technology). From this point of view, it seems to be natural for the incumbents of supervisory positions, especially first-line supervisors, to emphasize both of the two elements. Although it is possible that our indices are not fine enough to differentiate the foremen's supervisory orientations, the factor analysis performed on the items used to measure these orientations did demonstrate the validity of the questions asked. And from informal interviews, we

gained the impression that for most of the supervisors the two elements are like the two sides of a coin, although they may be theoretically distinguishable in a researcher's mind. The advantages and disadvantages of differentiating the two orientations should be seriously assessed in future studies.

In conclusion, we would like to examine the superior-subordinate relationship in a broader perspective - considering the foreman-worker relationship as an instance of authority relationships which are under the impact of general cultural and structural changes.

The technological advances of recent decades in North America have brought an incredible abundance in material goods and a higher level of education, but they also carried the seeds of change - change of work itself, or, at least of work on the old, familiar terms.

Some of the changes, such as the new methods of manufacturing, new ways of communication, the increasing number of years of schooling most people have, are visible and tangible. Harder to perceive, but already having an impact on the lives lived in our society is the change in attitudes about work, in how people - particularly young people - view their jobs.

In the early days of the Industrial Revolution, the money-instrumental view of work was not at all unreasonable, since the desire to maintain physical survival was paramount, and the role of work in helping to achieve that desire outranked any other characteristics it might have had. This does not seem to be true any longer in an industrialized society, and it would have an increasingly great effect on people's expectations of

work.

Having grown up in an affluent society, knowing no great depression, the younger group of workers, including the rank-and-file employees, supervisors, junior managers, and potential young executives, seem to have a very different set of priorities in their lives. With food and housing more or less ensured for most, and institutionalized medical care and unemployment insurance, the old urgency that attended work has been diminishing. Other values assume greater importance. For example, more than ever, they want more say in matters affecting them. More than ever, they are seeking for satisfaction. A job is no longer for life, but is just for as long as the worker likes it and it satisfies him. Thus, they are more ready to quit and more willing to challenge authority.

The college graduates who are going into industries in larger numbers, recently expanding to the lower echelons of industrial hierarchies, are part of this change. Because they have more education and greater expectations, they pose a double set of demands. They want more participation and personal fulfillment. But they also have a greater social consciousness and would suggest, if not insist, that the organizations employing them work toward realization of the high hopes they acquired at college for improvement of the environment.

Those who are less educated and have challenged the authority of their teachers and parents, and witnessed the struggle against authority by university students and by minority groups, the arguing of priests and bishops against the pope, are also a part of this social change. They go into the labour force with very different values and expectations about

work and life. Surely, security is still one of the most important demands of many workers. But, more often and strongly than ever, they are searching for participation and fulfillment. Besides money, they are looking for other things in their lives. The conflict between management and union over obligatory overtime indicates this point clearly. Surprisingly enough, many workers prefer time off to the extra money the overtime would have brought them.<sup>17</sup>

Admittedly, the above discussion is sketchy. An account of the forces behind the change and the directions they are moving to are not concerns of this study.<sup>18</sup> But they definitely will have a profound impact on authority relationships in organizations. What exactly the consequences will be is going to occupy the attention of many researchers for many years to come.

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<sup>17</sup>Judson Gooding, The Job Revolution, New York: Collier Books, p. 3, 1972.

<sup>18</sup>For discussions of the change of worker attitudes, see Jerome M. Rosow, The Worker and the Job: Coping with Change, Englewood, Cliffs, N.J.: Prentice-Hall, 1974; Judson Gooding, op. cit.; and David Jenkins, Job Power: Blue and White Collar Democracy, Baltimore: Penguin Books, 1974.

## APPENDIX A

Dear Sir:

This is to introduce Mr. Mervin Chen, a Ph.D. student in Sociology at McMaster University. As you may already know, the purpose of Mr. Chen's research is to find out the factors that account for the differences in supervisory styles in various kinds of industries.

To accomplish this purpose, he is asking you to help by answering some questions about your job. May I remind you that this is not a test. There are no right or wrong answers to the questions. They are simply meant to find out how you think about your work and some characteristics of your job. It is important, of course, for you to check the answer which most nearly fits your opinion.

Although he shall ask you to write your name on the questionnaire, and give some personal information about your background, I can assure you that all the questionnaires will be kept completely confidential. Under no circumstances will your identity or that of your company be known to anyone but him.

I thank you most sincerely for your help.

*Robert Drass Jr.*

Robert E. Drass, Jr.  
Assistant Professor  
Department of Sociology  
McMaster University  
Hamilton, Ontario



DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

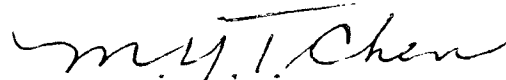
Dear Sir:

This questionnaire is designed to find out the factors that account for the differences in supervisory styles in industries.

The data are being gathered for my Ph.D. dissertation in the Department of Sociology, McMaster University.

Although you will be asked to write your name on the questionnaire, the information you give will be kept strictly confidential, and will not be released to anyone. The results will appear in aggregated form in my final report. No individual identity will be disclosed in any case.

I thank you most sincerely for your help.

  
Mervin Y.T. Chen  
Ph.D. candidate  
Department of Sociology  
McMaster University

General information

1. Name \_\_\_\_\_
2. Department \_\_\_\_\_
3. Age \_\_\_\_\_
4. Sex: (1) Male \_\_\_\_\_ (2) Female \_\_\_\_\_
5. Marital status: (1) single \_\_\_\_\_ (2) married \_\_\_\_\_  
(3) separated \_\_\_\_\_ (4) divorced \_\_\_\_\_ (5) widowed \_\_\_\_\_
6. Country of birth \_\_\_\_\_
7. If you were not born in Canada, in what year did you arrive in Canada? \_\_\_\_\_
8. Is English your first language? (1) yes \_\_\_\_\_ (2) no \_\_\_\_\_
9. If English is not your first language, how many years have you been speaking English? For \_\_\_\_\_ years.

Education:

10. Grade school: years completed \_\_\_\_\_
11. High school: years completed \_\_\_\_\_
12. Business school or trade school: years completed \_\_\_\_\_
13. University/college: years completed \_\_\_\_\_; Major subject \_\_\_\_\_
14. Have you attended any foreman's training courses?  
Please specify length of course(s).
15. Have you attended any other training course(s)?  
Please specify and give length of course(s).
16. How many years have you been a foreman? \_\_\_\_\_ years
17. How many years have you been on this position? \_\_\_\_\_ years.
18. How many years have you been working for this company?  
\_\_\_\_\_ years.

PLEASE CHECK THE ANSWER WHICH BEST FITS YOUR OPINION

1. In general, to get the work done, it is necessary to give detailed and frequent instructions to your workers.
- \_\_\_\_\_ strongly agree
- \_\_\_\_\_ agree
- \_\_\_\_\_ uncertain
- \_\_\_\_\_ disagree
- \_\_\_\_\_ strongly disagree
2. In general, to get the work done properly, it is necessary to keep a close eye on your workers.
- \_\_\_\_\_ strongly agree
- \_\_\_\_\_ agree
- \_\_\_\_\_ uncertain
- \_\_\_\_\_ disagree
- \_\_\_\_\_ strongly disagree
3. A foreman should insist that the standard method of doing the job be followed under all circumstances.
- \_\_\_\_\_ strongly agree
- \_\_\_\_\_ agree
- \_\_\_\_\_ uncertain
- \_\_\_\_\_ disagree
- \_\_\_\_\_ strongly disagree
4. Workers should be left alone to do their work in their own way.
- \_\_\_\_\_ strongly agree
- \_\_\_\_\_ agree
- \_\_\_\_\_ uncertain
- \_\_\_\_\_ disagree
- \_\_\_\_\_ strongly disagree

5. The members of your group are subject to only very broad standards of production.

\_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree

6. As a foreman, you should discuss the policy or operating decisions with your workers.

\_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree

7. Looking after your men is the most important part of your job.

\_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree

8. Keeping up production is the most important part of your job.

\_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree

9. If a worker comes to you with his personal problems, you should refer him to an expert instead of offering advice yourself.
- \_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree
10. You always 'go to bat' for your subordinates.
- \_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree
11. As a foreman, you should always take good care of the general welfare of your workers.
- \_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree
12. As a foreman, you have your hands full enough running the shop without having to bother with the general welfare of the workers
- \_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree

13. It is important to emphasize dead-lines and targets of production and urge your workers to speed up.

\_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree

14. To criticize and correct poor work is an important part of your job.

\_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree

15. In general, the men work best when they are not under too much pressure.

\_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree

16. As far as the production schedule is concerned, you always make proper arrangements, so that your workers do not feel the pressure of meeting dead-lines.

\_\_\_\_\_ strongly agree  
\_\_\_\_\_ agree  
\_\_\_\_\_ uncertain  
\_\_\_\_\_ disagree  
\_\_\_\_\_ strongly disagree

17. How many times a day on the average do you have to check to see how each worker is getting on?

\_\_\_\_\_ once  
 \_\_\_\_\_ twice  
 \_\_\_\_\_ three to five times  
 \_\_\_\_\_ six to ten times  
 \_\_\_\_\_ I don't check them regularly. Whenever I am not tied up by other things, I'd be on the shop floor.

18. Approximately, what proportion of your working time do you spend in your office and on the shop floor?

<u>In your office</u>	<u>On the shop floor</u>
_____ 1-10%	_____ 1-10%
_____ 11-20%	_____ 11-20%
_____ 21-40%	_____ 21-40%
_____ 41-70%	_____ 41-70%
_____ over 70%	_____ over 70%

19. The goals of your group are set completely by those above you.

\_\_\_\_\_ strongly agree  
 \_\_\_\_\_ agree  
 \_\_\_\_\_ uncertain  
 \_\_\_\_\_ disagree  
 \_\_\_\_\_ strongly disagree

20. How much does the responsibility of setting the goals of your group fall on you?

\_\_\_\_\_ entirely mine  
 \_\_\_\_\_ a great deal  
 \_\_\_\_\_ fair amount  
 \_\_\_\_\_ to some degree  
 \_\_\_\_\_ very little

21. How often does your immediate superior appear on the shop floor to check on your work group?
- ☐ less than once a day
  - ☐ once a day
  - ☐ twice a day
  - ☐ three times a day
  - ☐ four or more times a day
22. You are free to carry out your job in your own way.
- ☐ strongly agree
  - ☐ agree
  - ☐ uncertain
  - ☐ disagree
  - ☐ strongly disagree
23. Your method of supervising closely resembles that of your immediate superior.
- ☐ strongly agree
  - ☐ agree
  - ☐ uncertain
  - ☐ disagree
  - ☐ strongly disagree
24. The work of your group varies
- ☐ a great deal
  - ☐ fairly much
  - ☐ to some degree
  - ☐ comparatively little
  - ☐ very little



25. In comparison with the tasks of other groups in your department (or plant), the tasks of your group are technically
- \_\_\_\_\_ very complex
  - \_\_\_\_\_ some what more complex
  - \_\_\_\_\_ about the same
  - \_\_\_\_\_ somewhat less complex
  - \_\_\_\_\_ much less complex
26. How many workers are under your supervision?
27. Could you please describe how many different operations (or different kinds of work) there are that come under your supervision?
28. Would you please indicate the levels of skills required for each operation of work to be completed.
29. If your workers are organized into crews (or small teams, or groups), how many crews are there in your section? Please indicate how the crews (or each kind of crew) are organized.

30. How many of the crews do the same thing? \_\_\_\_\_  
How many of the crews do different things? \_\_\_\_\_
31. To what extent can most of your workers make decisions about what tools to be used to get their work done?  
Could you please indicate by percentage?
32. To what extent can most of your workers make decisions on what material to be used to get their jobs done?  
Could you please indicate by percentage?
33. To what extent can most of your workers pace their own work?  
Could you please indicate by percentage?
34. If there is a skill scale in your Company, would you please tell me how many workers are there at each level of skill in your group? If there is not, could you please rank them in your own opinion, and indicate the number of workers in each rank?

Thank you very much.

## APPENDIX B

Dear Sir:

This is to introduce Mr. Mervin Chen, a Ph.D. student in Sociology at McMaster University. As you may already know, the purpose of Mr. Chen's research is to find out the factors that account for the differences in supervisory styles in various kinds of industries.

To accomplish this purpose, he is asking you to help by answering some questions about your job. May I remind you that this is not a test. There are no right or wrong answers to the questions. They are simply meant to find out how you think about your work and some characteristics of your job. It is important, of course, for you to check the answer which most nearly fits your opinion.

Although he shall ask you to write your name on the questionnaire, and give some personal information about your background, I can assure you that all the questionnaires will be kept completely confidential. Under no circumstances will your identity or that of your company be known to anyone but him.

I thank you most sincerely for your help.

*Robert Drass Jr.*

Robert E. Drass, Jr.  
Assistant Professor  
Department of Sociology  
McMaster University  
Hamilton, Ontario

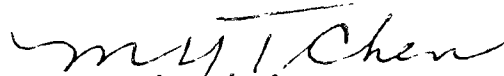
Dear Sir:

This questionnaire is designed to find out the factors that account for the differences in supervisory styles in industries.

The data are being gathered for my Ph.D. dissertation in the Department of Sociology, McMaster University.

Although you will be asked to write your name on the questionnaire, the information you give will be kept strictly confidential, and will not be released to anyone. The results will appear in aggregated form in my final report. No individual identity will be disclosed in any case.

I thank you most sincerely for your help.



Mervin Y.T. Chen  
Ph.D. candidate  
Department of Sociology  
McMaster University

MCMASTER SURVEY OF SUPERVISORY STYLESGeneral information

1. Name \_\_\_\_\_
2. Department \_\_\_\_\_
3. Age \_\_\_\_\_
4. Sex: (1)Male \_\_\_\_\_ (2)Female \_\_\_\_\_
5. Marital status: (1)single \_\_\_\_\_ (2)married \_\_\_\_\_  
(3)separated \_\_\_\_\_ (4)divorced \_\_\_\_\_ (5)widowed \_\_\_\_\_
6. Country of birth \_\_\_\_\_
7. If you were not born in Canada, in what year did you arrive in Canada? \_\_\_\_\_
8. Is English your first language? (1)yes \_\_\_\_\_ (2)no \_\_\_\_\_
9. If English is not your first language, how many years have you been speaking English? For \_\_\_\_\_ years.

Education

10. Grade school: years completed \_\_\_\_\_
11. High school: Years completed \_\_\_\_\_
12. Business school or trade school: years completed \_\_\_\_\_
13. University/college: years completed \_\_\_\_\_.
14. Degree: (1)B.A. or B.Sc. \_\_\_\_\_ (2)M.A. or M.Sc. or M.B.A. \_\_\_\_\_  
(3)Ph.D. \_\_\_\_\_
15. How many years have you been a general foreman (or superintendent or assistant general foreman, or plant manager)?  
\_\_\_\_\_ years
16. How long have been on this job? \_\_\_\_\_ years.
17. How many years have been working for this Company?  
\_\_\_\_\_ years.
18. Were you one time a foreman? (1)yes \_\_\_\_\_ (2)no \_\_\_\_\_
19. If yes, for how many years? For \_\_\_\_\_ years.

PLEASE CHECK THE ANSWER WHICH BEST FITS YOUR OPINION

1. In general, to get the work done, it is necessary to give detailed and frequent instructions to your subordinates.

☐ strongly agree  
☐ agree  
☐ uncertain  
☐ disagree  
☐ strongly disagree

2. In general, to get the work done properly, it is necessary to keep a close eye on your subordinates.

☐ strongly agree  
☐ agree  
☐ uncertain  
☐ disagree  
☐ strongly disagree

3. A general foreman (or superintendent or assistant general foreman) should insist that the standard methods of doing the jobs be followed under all circumstances.

☐ strongly agree  
☐ agree  
☐ uncertain  
☐ disagree  
☐ strongly disagree

4. Subordinates should be left alone to use their discretion in their jobs.

☐ strongly agree  
☐ agree  
☐ uncertain  
☐ disagree  
☐ strongly disagree

5. Your subordinates are subject to only very broad standards of production.

\_\_\_\_ strongly agree  
\_\_\_\_ agree  
\_\_\_\_ uncertain  
\_\_\_\_ disagree  
\_\_\_\_ strongly disagree

6. You should discuss the policy or operating decisions with your subordinates.

\_\_\_\_ strongly agree  
\_\_\_\_ agree  
\_\_\_\_ uncertain  
\_\_\_\_ disagree  
\_\_\_\_ strongly disagree

7. Looking after your subordinates is the most important part of your job.

\_\_\_\_ strongly agree  
\_\_\_\_ agree  
\_\_\_\_ uncertain  
\_\_\_\_ disagree  
\_\_\_\_ strongly disagree

8. Keeping up production is the most important part of your job.

\_\_\_\_ strongly agree  
\_\_\_\_ agree  
\_\_\_\_ uncertain  
\_\_\_\_ disagree  
\_\_\_\_ strongly disagree



9. If a worker comes to you with his personal problems, you should refer him to an expert instead of offering advice yourself.

\_\_\_\_ strongly agree  
\_\_\_\_ agree  
\_\_\_\_ uncertain  
\_\_\_\_ disagree  
\_\_\_\_ strongly disagree

10. You always 'go to bat' for your subordinates.

\_\_\_\_ strongly agree  
\_\_\_\_ agree  
\_\_\_\_ uncertain  
\_\_\_\_ disagree  
\_\_\_\_ strongly disagree

11. You should always take good care of the general welfare of your subordinates.

\_\_\_\_ strongly agree  
\_\_\_\_ agree  
\_\_\_\_ uncertain  
\_\_\_\_ disagree  
\_\_\_\_ strongly disagree

12. You have your hands full enough running the department without having to bother with the general welfare of your subordinates.

\_\_\_\_ strongly agree  
\_\_\_\_ agree  
\_\_\_\_ uncertain  
\_\_\_\_ disagree  
\_\_\_\_ strongly disagree

13. It is important to emphasize dead-lines and targets of production and urge your subordinates to achieve these goals.

\_\_\_ strongly agree  
\_\_\_ agree  
\_\_\_ uncertain  
\_\_\_ disagree  
\_\_\_ strongly disagree

14. To criticize and correct poor work is an important part of your job.

\_\_\_ strongly agree  
\_\_\_ agree  
\_\_\_ uncertain  
\_\_\_ disagree  
\_\_\_ strongly disagree

15. In general, your subordinates work best when they are not under too much pressure.

\_\_\_ strongly agree  
\_\_\_ agree  
\_\_\_ uncertain  
\_\_\_ disagree  
\_\_\_ strongly disagree

16. As far as the production schedule is concerned, you always make proper arrangements, so that your subordinates do not feel the pressure of meeting the dead-lines.

\_\_\_ strongly agree  
\_\_\_ agree  
\_\_\_ uncertain  
\_\_\_ disagree  
\_\_\_ strongly disagree

17. How often on the average do you have to check to see each group (or section, or department) is getting on?

\_\_\_\_\_ once a week  
\_\_\_\_\_ twice a week  
\_\_\_\_\_ once or twice a day  
\_\_\_\_\_ three to five times a day  
\_\_\_\_\_ six or more times a day

18. Approximately, what proportion of your working time do you spend in your office and on the shop floor?

In your office

\_\_\_\_\_ 1-10%  
\_\_\_\_\_ 11-20%  
\_\_\_\_\_ 21-40%  
\_\_\_\_\_ 41-70%  
\_\_\_\_\_ over 70%

On the shop floor

\_\_\_\_\_ 1-10%  
\_\_\_\_\_ 11-20%  
\_\_\_\_\_ 21-40%  
\_\_\_\_\_ 41-70%  
\_\_\_\_\_ over 70%

THANK YOU!

## APPENDIX C

McMASTER UNIVERSITY

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HAMILTON, ONTARIO, CANADA

DEPARTMENT OF SOCIOLOGY AND ANTHROPOLOGY

September 19, 1971

Dear Sir:

A doctoral student, Mervin Chen, in this Department is conducting a study about the determinance of supervisory style. We are asking several business organizations, such as yours, to cooperate with Mr. Chen in his research project. He will be calling on you within a few days. Your cooperation will be much appreciated.

Sincerely yours,

A handwritten signature in dark ink, appearing to read "R.E. Drass, Jr.", with a stylized flourish at the end.

R.E. Drass, Jr.  
Assistant Professor of Sociology

## APPENDIX D

This Outline was used for meetings with the top managements of the selected industries.

STRUCTURAL AND TECHNOLOGICAL DETERMINANTS  
OF SUPERVISORY STYLES

---An Outline---

Department of Sociology  
McMaster University

Mervin Y.T. Chen

I. THE PURPOSE AND NATURE OF THE RESEARCH

The purpose of this research is to try to find out the factors that account for the differences in supervisory styles in industry.

While the results of the study may have practical implications for industries, the nature of the research is purely academic, under no circumstances will the identity of the participating industries be made public. All answered questionnaires and other data collected will be regarded as completely confidential.

II. RATIONALE

Supervisory styles have long been a matter of concern for both industrial managers and social scientists. The primary concern of numerous studies was the consequences of different supervisory styles on the performance of workers. Underlying all these studies, there is a strong belief that the Human Relations approach is a better, if not the best, way of supervising workers. However, in spite of all the research efforts so far, no significant relationship has been established between

this approach and productivity, though it does seem to be related to morale factors, such as turnover and absenteeism. There are also reports that most Supervisor Training Programmes do not produce the results expected. This gives rise to the question whether the environmental conditions which the supervisor faces may not, to a certain extent at least, determine the supervisory style he must adopt. This researcher thinks that it is high time for us to divert some effort to finding out the answers to this important question.

In the proposed research, the environmental conditions are conceived in terms of three major aspects. (i) the nature of the social structure within which the supervisor performs his role, (ii) the nature of the technological environment within which he has to operate, and (iii) the background characteristics of the supervisors.

### III. IMPLICATIONS OF THE RESEARCH

We hypothesize that the differences of supervisory style are determined by structural, technological, and background factors. If we could establish or discover the causes of the differences, then we would be able to determine which style of supervision is efficient under specified conditions. Once the relationship between these specific conditions and supervisory practices could be established, the management would be in a position to advise its supervisory staff on the style of supervision that accords with these conditions.



#### IV. METHODS

The setting for this research would be several industries in which technologies employed by their various departments are sufficiently different to cover the independent variables, i.e., the structural, technological, and background factors.

Structured interviewing will be employed to collect the data. The exact number of foremen or supervisors who will be interviewed will be determined by the specific situation in each participating industry. The length of each interview is approximately one hour.

## APPENDIX E

FACTOR LOADINGS OF SUPERVISORY STYLE

(N = 114)

ITEMS	FACTOR LOADINGS			
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
1. In general, to get the work done, it is necessary to give detailed and frequent instructions to your workers.	-.151	-.169	-.027	.722*
2. In general, to get the work done properly, it is necessary to keep a close eye on your workers.	.079	.009	-.010	.593*
3. A foreman should insist that the standard method of doing the job be followed under all circumstances.	.270	.171	.224	.302*
4. Workers should be left alone to do their work in their own way.	-.170	.115	-.152	.081
5. The members of your group subject to only broad standards of production.	.066	-.005	-.227	.069
6. As a foreman, you should discuss the policy or operation decisions with your workers.	-.062	.308*	.013	-.224
7. Looking after your men is the most important part of your job.	-.229	.276	-.209	-.095
8. Keeping up production is the most important part of your job,	.042	.003	.529*	-.100
9. If a worker comes to you with his personal problems, you should refer him to an expert instead of offering advice yourself.	.089	.160	.043	.169
10. You always 'go to bat' for your subordinates.	-.112	.518*	-.207	.047
11. As a foreman, you should always take good care of the general welfare of your workers.	.029	.649*	-.025	-.167
12. As a foreman, you have your hands full enough running the shop without having to bother with the general welfare of the workers.	.203	.589*	.285	.137

continued...

## APPENDIX E continued

ITEMS	FACTOR LOADINGS			
	<u>I</u>	<u>II</u>	<u>III</u>	<u>IV</u>
13. It is important to emphasize dead-lines and targets of production and urge your workers to speed up.	.088	-.034	.542*	.013
14. To criticize and correct poor work is an important part of your job.	-.031	.021	.423*	-.068
15. In general, the men work best when they are not under too much pressure.	.297	-.025	.305*	.236
16. As far as the production schedule is concerned, you always make proper arrangements, so that your workers do not feel the pressure of meeting dead-lines.	.212	-.079	.216	.138
17. How many times a day on the average do you check to see how each worker is getting on.	.067	-.054	.083	-.039
18. Approximately, what proportion of your working time do you spend in your office?	.639*	.045	-.253	.039
19. Approximately, what proportion of your working time do you spend on the shop floor.	.793*	.057	-.217	-.016

\*Items marked by an asterisk are those whose factor loadings are .30 or higher. These items formed new scales for the analysis of the data.

EIGENVALUES OF THE FACTORS:

<u>FACTOR</u>	<u>EIGENVALUE</u>
1	2.19484
2	1.33767
3	1.10353
4	.97810

OBLIQUE PROCEDURES:

Principal factoring PA2 program of SPSS\* was used. The oblique rotational method is the direct "oblimin" which was built in the program. The DELTA value used was zero.

\* See Norman H. Nie, Dale H. Bent, and C. Hadlai Hull, Statistical Package for the Social Sciences, New York: McGraw-Hill, pp. 219-220, 224-225, 1970.

# BIBLIOGRAPHY

## Books and Pamphlets

- Barnard, Chester I. The Functions of the Executive. Cambridge, Mass.: Harvard University Press, 1938.
- Blake, Robert R. and Jane S. Mouton. The Managerial Grid. Houston: Gulf Publishing Company, 1964.
- Blau, Peter. The Dynamics of Bureaucracy. Chicago: University of Chicago Press, 1955.
- Blau, P. and W.R. Scott. Formal Organizations: A Comparative Approach. San Francisco: Chandler, 1962.
- Bluner, Robert. Alienation and Freedom. Chicago: University of Chicago Press, 1964.
- Burns, Tom and G.M. Staker. The Management of Innovation. London: Tavistock, 1961.
- Caplow, Theodore. Principles of Organization. New York: Harcourt, Bruce and World, 1964.
- Cartwright, D. and A. Zander, Group Dynamics: Research and Theory. New York: Harper and Row, 1953.
- Chinoy, E. Automobile Workers and the American Dream. Garden City: Doubleday, 1955.
- Chruden, Herbert and Arthur Sherman, Jr. Personnel Management. 3rd ed., Cincinnati: South-Western Pub. Co., 1968.
- Clark, Burton R. Adult Education in Transition. Berkely: University of California Press, 1956.
- Comery, A.L., J.F. Pfiffner and W.S. High. Factors Influencing Organizational Effectiveness. U.C.L.A. Final Technical Report, the Office of Naval Research, 1954.
- Crozier, M. Bureaucratic Phenomenon. Chicago: University of Chicago Press, 1964.
- , The World of the Office Worker. Chicago, The University of Chicago Press, 1971.

- Dubin, Robert. The World of Work. Englewood Cliffs: Prentice-Hall, 1958.
- . Human Relations in Administration. Prentice-Hall, 1st ed., 1951 and 3rd ed., 1968.
- Dubin R. et al. Leadership and Productivity. San Francisco. Chandler, 1965.
- Etzioni, A. A Comparative Analysis of Complex Organizations. New York: The Free Press, 1961.
- Fiedler, F.E. A Theory of Leadership Effectiveness. New York: McGraw-Hill, 1967.
- Fleishman, E.A., E.F. Harris, and H.E. Burt. Leadership and Supervision in Industry. Ohio State Business Education Research Monography, 1955.
- Friedmann, E. and Robert Havighurst. The Meaning of Work and Retirement. Chicago: University of Chicago Press, 1954.
- Gerth, H.H., and C. Wright Mills. From Max Weber: Essays in Sociology. New York: Oxford University Press, 1958.
- Ginsburg, Woodrow L., H.S. Parnes, E. Robert Livernash, and George Strauss. A Review of Industrial Relations Research. Industrial Relations Research Association, 1970.
- Gooding, Judson. The Job Revolution. New York: Collier Books, 1972.
- Gouldner, Alvin.W. Patterns of Industrial Bureaucracy. New York: The Free Press, 1954.
- . Wildcat Strike: A Study in Worker-Management Relationships. New York: Harper and Row, 1954.
- Grusky, O. and G.A. Miller. The Sociology of Organizations: Basic Studies. New York: The Free Press, 1970.
- Hemphill, J.K. Situational Factors in Leadership. Columbus: Ohio State University, Personnel Research Board, 1949.
- Herbst, P.G. Autonomous Group Functioning. London: Tavistock, 1962.
- Hughes, Everett. Men and Their Work. Glencoe, Ill.: The Free Press, 1958.
- . French Canada in Transition. Chicago: University of Chicago Press, 1943.
- Jenkins, David. Job Power: Blue and White Collar Democracy. Baltimore: Penguin Books, 1974.

- Johnson, Terrence J. Professions and Power. London: The Macmillan Press Ltd., 1972.
- Jones, Frank E. Technology, Stress and Stress Reduction in an Electronic Factory. Mimeography, 1969.
- Katz, D., N. Maccoby, G. Gurin and L.G. Floor. Productivity, Supervision, and Morale among Railroad Workers. Franklin DeKlein Co., 1951.
- Katz, D., N. Maccoby and N.C. Morse. Productivity, Supervision and Morale in an Office Situation. Detroit: The Darel Press, 1950.
- Kauffman, Herbert. The Forest Ranger. Baltimore: John Hopkins Press, 1960.
- Kulckhohn, Florence R. and Fred L. Strodbeck. Variations in Values Orientations. New York: Row, Peterson and Co., 1961.
- Koontz, Harold and Cycil O'Donnell. Principles of Management. 3rd ed., McGraw-Hill, 1964.
- Lawrence, P.R. and J.W. Lorsch. Organization and Environment: Managing Differentiation and Integration. Boston: Harvard, 1967.
- Learned, E.P. and A.T. Sproat. Organization, Theory and Policy: Notes for Analysis. Homewood, Ill.: Irwin, 1966.
- Leavitt, Harold. Managerial Psychology. Chicago: The University of Chicago Press, 1964.
- Likert, R. New Patterns of Management. New York: McGraw-Hill, 1961.
- Mann, F.C. and L.R. Hoffman. Automation and the Worker. New York: Holt, Rinehart, and Winston, 1960.
- McGregor, D. The Human Side of Enterprise. New York: McGraw-Hill, 1960.
- March, James C. and Herbert A. Simon. Organizations. New York: Wiley, 1958.
- Matthewson, S.B. Restriction of Output among Unorganized Workers. New York: Viking, 1931.
- Meissner, Martin. Technology and the Worker: Technical Demands and Social Processes in Industry. San Francisco: Chandler, 1969.
- Merton, Robert K. Ailsa P. Gray, Barbara Hockey, and Hanan C. Selvin. Reader in Bureaucracy. New York: The Free Press, 1952.



- Merton, Robert K. Social Theory and Social Structure. 2nd edition, Glencoe Ill.: The Free Press, 1957.
- Nunnally, Jum C., Psychometric Theory, McGraw-Hill, 1967.
- Parsons, Talcott, Robert Bales and Edward A. Shils. Working Papers in the Theory of Action, Glencoe, Ill.: The Free Press, 1953.
- Patten, Jr., T.H. The Foreman: The Forgotten Man of Management. American Management Association, 1968.
- Peabody, Robert L. Organizational Authority: Superior-Subordinate Relationships in Three Public Service Organizations. New York: Atherton Press, 1964.
- Pigors, Paul, and Charles A. Myers. Personnel Administration: A Point of View and a Method. 6th edition. New York: McGraw-Hill, 1969.
- Reddin, W.J. Management Effectiveness. New York: McGraw-Hill, 1970.
- Richardson, F.L. and Charles R. Walker. Human Relations in an Expanding Company. New Haven: Labour and Management Center, Yale University, 1948.
- Roethlisberger, F.J. and W.J. Dickson. Management and the Worker. Cambridge, Mass.: Harvard University Press, 1939.
- Rosow, Jerome M. The Worker and the Job: Coping with Change. Englewood Cliffs, N.J.: Prentice-Hall, 1974.
- Sayles, L.R. Behaviour of Industrial Work Groups. New York: John Wiley and Sons, 1958.
- Sayles, L.R. and G. Strauss. Human Behaviour in Organizations. Englewood Cliffs, N.J.: Prentice-Hall, 1966.
- Schneider, Eugene V. Industrial Sociology: The Social Relations of Industry and the Community. 2nd edition, New York: McGraw-Hill, 1969.
- Seashore, S.E. Group Cohesiveness in the Industrial Work Group. Ann Arbor: Institute for Social Research, University of Michigan, 1954.
- Selltiz, Claire, Marie Johoda, Morton Deutsch, and Stuart W. Cook. Research Methods in Social Relations. Red. ed., New York: Holt, Rinehart, and Winston, 1959.
- Silverman, David. The Theory of Organizations. London: Heineman, 1970.

- Simon, Herbert A. Administrative Behaviour. 2nd edition, Macmillan, 1957.
- Stouffer, S.A. et al. The American Soldier: Combat and Its Aftermath. Princeton, N.J.: Princeton University Press, 1949.
- Strauss, G. and L.R. Sayles. Personnel. Englewood Cliffs: Prentice-Hall, 1963.
- Tausky, Curt. Work Organization: Major Theoretical Perspectives. Itasca, Ill.: Peacock, 1970.
- Thurley, K.E. and A.C. Hamblin. The Supervisor and His Job. London: Her Majesty's Stationery Office, 1963.
- Udy, Jr., Stanley H. Organization of Work: A Comparative Analysis of Production Among Non-Industrial Peoples. New Haven: Human Relations Area Files Press, 1959.
- Vroom, Victor H. Work and Motivation. New York: John Wiley and Sons, 1965.
- Walker, C.R., R. Guest and A.N. Turner. The Foremen on the Assembly Line. Cambridge, Mass.: Harvard University Press, 1956.
- Walker, C.R. and R.H. Guest. The Man on the Assembly Line. Cambridge, Mass.: Harvard University Press, 1956.
- Warner, L. and J.O. Low. The Social System of the Modern Factory. New Haven: Yale University Press, 1947.
- Weber, Max. The Theory of Social and Economic Organizations. Talcott Parsons, ed., New York: The Free Press, 1974.
- Wedderburn, Dorothy and Rosemary Crompton. Worker's Attitudes and Technology. Cambridge University Press, 1972.
- Westerlund, Gunnar. Group Leadership. Stockholm: Nordisk Rotogravyr, 1952.
- Wirderius, Hans. Supervisor at Work. Stockholm: The Swedish Council for Personnel Administration, 1958.
- Woodward, J. Industrial Organization: Theory and Practice. London: Oxford University Press, 1965.
- . Industrial Organization: Behaviour and Control. London: Oxford University Press, 1970.

Zaleznik, A., C.R. Christensen and F.J. Roethlisberger. The Motivation, Productivity and Satisfaction of Workers: a Prediction Study. Boston: Graduate School of Business Administration, Harvard University, 1958.

### Articles

Argyle, M., G. Gardner and F. Cioffi. "Supervisory Methods Related to Productivity, Absenteeism, and Labour Turnover." Human Relations. 11:23-40, 1958.

Becker, Howard S. "Notes on the Concept of Commitment," in his Sociological Work: Method and Substance. Chicago: Aldine Publishing Company, 1970.

-----, "Problems of Inference and Proof in Participant Observation," in his Sociological Work: Method and Substance. Chicago: Aldine Publishing Company, 1970.

Bell, G.D. "Determinants of Span of Control." American Journal of Sociology. 73:100-109, 1967.

Benne, Kenneth D. and Paul Sheats. "Functional Roles of Group Members," Journal of Social Issues. 4:41-49, 1948.

Bennis, Warren G. "Leadership Theory and Administrative Behaviour: The Problem of Authority." Administrative Science Quarterly. 5:3:260-301, 1959.

Borgatta, E.F. "My Student, The Purist: A Lament." Sociological Quarterly. 9:1:29-34, 1968.

Brayfield, Arthur H. and James H. Crockett. "Employee Attitudes and Employee Performance." Psychological Bulletin. 52, 1955.

Burack, Elmer H. "Technology and Some Aspects of Industrial Supervision: A Model Building Approach." Journal of Academy of Management. 9:43-66, 1966.

Etzioni, A. "Human Relations and the Foreman." Pacific Sociological Review. Spring, 33-38, 1958.

-----, "Dual Leadership in Complex Organizations." American Sociological Review. 30:688-698, 1965.

- Evans, Martin. "Leadership Behaviour: Demographic Factors and Agreement Between Subordinate and Self-Description." Personnel Psychology. 25:649-653, 1972.
- Faunce, W. "Automation in the Automobile Industry: Some Consequences for In-plant Social Structure." American Sociological Review. 23:4:401-407, 1958.
- Fleishman, E.A. "Leadership Climate, Human Relations Training, and Supervisory Behaviour." Personnel Psychology. 6:1:205-222, 1953.
- ". "The Description of Supervisory Behaviour." Journal of Applied Psychology. 37:1-6, 1953.
- Fleishman, E.A. and E.F. Harris. "Patterns of Leadership Behaviour, Related to Employee Grievance and Turnover." Personnel Psychology. 15:43-56, 1962.
- Fleishman, E.A. and D.A. Peters. "Leadership Attitudes and Managerial Success." Personnel Psychology. 15:127-143, 1962.
- Gibb, Cecil A. "Leadership," in Gardner Lindzey and Elliot Aronson, eds., The Handbook of Social Psychology. Vol. IV. Reading, Mass.: Addison-Wesley, 205-282, 1968-69.
- Gibson, R. Oliver, "Toward a Conceptualization of Absence Behaviour of Personnel in Organizations." Administrative Science Quarterly. 11: 107-133, 1966.
- Gouldner, Alvin W. "Cosmopolitans and Locals: Toward an Analysis of Latent Social Roles, I & II." Administrative Science Quarterly. 2:281-306 and 444-480, 1957-58.
- Graicunas, V.A. "Relationship in Organization." reprinted in Papers on the Science of Administration. L. Gulick and L. Urwick, eds., New York: Columbia University, 180-187, 1937.
- Hemphill, J.K. "The Leader and His Group." Educational Research Bulletin. 28:225-229, 1949.
- ". "Relationship Between the Size of the Group and the Behaviour of Superior Leaders." Journal of Social Psychology. 32:11-22, 1950.
- Hickson, David J., D.S. Pugh, and Diana C. Pheysey. "Operations Technology and Organizations Structure: An Empirical Reappraisal." Administrative Science Quarterly. 14:3:378-397, 1969.

- Hill, Walter H. "Leadership Style: Rigid or Flexible?" Organizational Behaviour and Human Performance. 9:35-47, 1973.
- Hill, Walter A. and David Hughes. "Variations in Leader Behaviour as a Function of Task Type." Organizational Behaviour and Human Performance. 11:83-96, 1974.
- Homans, George C. "Effort, Supervision and Productivity." in R. Dubin, G.C. Homans, F.C. Mann, and D.C. Miller, Leadership and Productivity. San Francisco, California: Chandler, 51-67, 1965.
- House, Robert J. "A Partial Theory of Leadership Effectiveness." Administrative Science Quarterly. 16:3:321-338, 1971.
- House, Robert J. and Garry Dessler. "The Path-Goal Theory of Leadership: Some post hoc and a priori Tests." paper presented at the Second Leadership Symposium: Contingency Approach to Leadership, Southern Illinois University, Carbondale, Illinois, Mimeograph, 1973.
- Jacobson, E., W.W. Charters, and S. Lieberman. "The Use of Role Concept in the Study of Complex Organizations." Journal of Social Issues. 7:18-27, 1951.
- Jain, Larish C. "Supervisory Communication and Performance in Two Urban Hospitals." Journal of Communication. 23:1:103-117, 1973.
- Janowitz, Morris. "Changing Patterns of Organizational Authority: The Military Establishment." Administrative Science Quarterly. 3: 473-493, 1959.
- Kahn, R.L. "The Prediction of Productivity." Journal of Social Issues. 12:41-49, 1956.
- Kahn, R.L. and D. Katz. "Leadership Practices in Relationship to Productivity and Morale," in D. Cartwright and A. Zander, eds., Group Dynamics: Research and Theory. New York: Harper and Row, 612-628, 1953.
- Korman, A. "'Consideration', 'Initiating Structure', and Organizational Criteria - A Review." Personnel Psychology. 19:334-361, 1966.
- Labovitz, Sanford. "Some Observations on Measurement and Statistics." Social Forces. 46:2:151-160, 1967.
- ". "The Assignments of Numbers to Rank Order Categories." American Sociological Review. 35:515-524, 1970.
- Lawrence, P.R. "Organizing for Innovations?" An address before the second Harvard Business School, Pittsburg Regional Conference,

- April 4, 3-4, 1964, cited by E.P. Learned and A.T. Sproat. Organization Theory and Policy: Notes for Analysis. Homewood, Ill.: Irwin, 62-65, 1966.
- Likert, Rensis. "Developing Patterns in Management," in American Management Association, Strengthening Management for the New Technology, New York, 1955.
- Mann, Floyd C. "Toward an Understanding of the Leadership Role in Formal Organization," in Robert Dubin, George C. Homans, Floyd C. Mann, Robert C. Miller, Leadership and Productivity. San Francisco: Chandler, 68-102, 1965.
- Mann, R.D. "A Review of the Relationships between Personality and Performance in Small Groups." Psychology Bulletin, 56:241-270, 1959.
- Merton, Robert K. "Bureaucratic Structure and Personality," in Robert K. Merton, Ailsa P. Gray, Barbara Hockey, and Hanan C. Selvin, Eds., Reader in Bureaucracy. New York: The Free Press, 361-371, 1952.
- Meyer, Marshall W. "Size and the Structure of Organizations: A Causal Analysis." American Sociological Review. 37:434-441, 1972.
- Moore, W.E. "Aging and the Social System," in John C. McKinney and Frank T. De Vyver (eds.), Aging and Social Policy. New York: Appleton-Century-Crofts, 1966.
- Morse, Nancy C. and E. Reimer. "The Experimental Change of a Major Original Variables." Journal of Abnormal and Social Psychology. 52:120-129, 1956.
- Norse, N.C. and R.S. Weiss. "The Function and Meaning of Work and the Job." American Journal of Sociology. 20:191-198, 1955.
- Nealey, S.M. and M.R. Blood. Leadership Performance of Nursing Supervisors at Two Organizational Levels. Urbana, Illinois, Group Effectiveness Research Laboratory, University of Illinois, Mimeograph, 241-243, 1967.
- Oaklander, H. and E.A. Fleishman. "Patterns of Leadership Related to Organizational Stress in Hospital Settings." Administrative Science Quarterly, 8:521-532, 1963-64.
- Parsons, Talcott. "Suggestions for a Sociological Approach of the Theory of Organizations, I, II." Administrative Science Quarterly. 1:63-85 and 225-239, 1956.

- Pelz, D.C. "Influence: a Key to the Effective Leadership in the First-line Supervisor." Personnel, 29:3:209-219, 1952.
- Perrow, C. "A Framework for the Comparative Analysis of Organizations." American Sociological Review. 32:2:194-208, 1967.
- Pirenne, Henri. "Guilds, European." Encyclopedia of Social Sciences. Vol. VII, 208-214, 1930.
- Poe, H.A. and I.A. Berg. "Psychological Test Performance of Steel Industry Production Supervisors." Journal of Applied Psychology. 36:234-237, 1952.
- Roy, Donald, "Quota Restriction and Goldbricking in a Machine Shop." American Journal of Sociology. 37:427-442, 1952.
- , "Efficiency and the fix': Informal Intergroup Relations in a Piece-work Machine Shop." American Journal of Sociology. 6: 255-266, 1954.
- Scott, W.G. "Organizational Theory: An Overview and an Appraisal." Journal of the Academy of Management, 4:1:7-26, 1961.
- Selznick, P. "Foundations of the Theory of Organization." American Sociological Review. 13:25-35, 1948.
- Stieglitz, Harold. "Optimizing the Span of Control." Management Record. 24:25-29, 1962.
- Stogdill, R.M. "Personal Factors Associated with Leadership." Journal of Psychology. 25:25-71, 1948.
- Strauss, G. "Organizational Behaviour and Personnel Relations," in W.L. Ginsberg, H.S. Parnes, E.R. Livernash, and G. Strauss, A Review of Industrial Relations Research Vol. I, 145-206, 1970.
- , "The Changing Role of the Working Supervisor," in Robert Dubin (ed.), Human Relations in Administration. 3rd. ed., Prentice-Hall, 232-243, 1968.
- Trist, E.L. and E.K. Bamforth. "Some Social Psychological Consequences of Longwall Methods of Coal Getting." Human Relations. 4:3-38, 1951.
- Vroom, V. and F.C. Mann. "Leader Authoritarianism and Employee Attitudes." Personnel Psychology. 13:125-140, 1969.

- White, R. and R. Lippitt. "Leader Behaviour and Member Reaction in Three Social Climates," in D. Cartwright and A. Zander, eds., Group Dynamics: Research and Theory. New York: Harper and Row, 527-553, 1960.
- Whyte, W.F. and B. Gardner. "The Man in the Middle." Applied Anthropology. 4:1-28, 1945.
- Wray, Donald E. "Marginal Man in Industry: The Foreman." American Journal of Sociology. 49:298-301, 1944.
- Zald, M.N. "Organizational Control Structure in Five Correctional Institutions." American Journal of Sociology. 68:335-345, 1962.

#### Unpublished Doctoral Theses

- Brewer, John. Organizational Patterns of Supervision: a Study of the Debureaucratization of Authority Relations in Two Business Organizations. The University of Chicago, 1969.
- Burack, Elmer Howard. Some Aspects of the Relations of Process Technology to Authority Plant Technical Organization. Northwestern University, 1964.
- Guest, R.H. Organizational Change and the Successful Leader. Columbia University, 1960.
- Jain, Harish Chand. Internal Communications and Supervisory Effectiveness in Two Urban Hospitals. University of Wisconsin, 1970.