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TOWARD AN UNDERSTANDING OF THE LEADERSHIP ROLE
IN FORMAL ORGANIZATION*

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This chapter is essentially a progress report. As the wording of the title indicates, the ideas being reported are still in the process of being developed and tested against the reality of managerial and supervisory roles in different organizations. While I will present first the approach or conceptual framework that some of us¹ are using in thinking about the leadership role in formal organizations, and then go on to describe research findings regarding this way of thinking, I would like to underscore that the research findings have contributed a good deal more to our theory in this area than the other way around. Thus, while this statement of our present thinking and research will be in the generally prescribed and time-honored manner of going from theory to findings, the findings are actually shaping the theory.

*Chapter in Dubin, Homans, Mann and Miller: "Hours of Work." To be published in 1964 by Chandler Publishing Company, San Francisco, California.

¹A number of colleagues have contributed to the development of this orientation toward organizational leadership or the bits of evidence that we now have supporting this approach. These include James K. Dent, L. Richard Hoffman, Lawrence K. Williams, Basil S. Georgopoulos, and Franklin W. Neff. Others contributing less directly but importantly to my general thinking in this area are John R.P. French, Jr., Robert L. Kahn, and Rensis Likert. John Erfurt has worked as a close associate in the analysis and testing of these ideas during the year since an earlier draft of this paper was given at the American Sociological Association meetings in Washington, D. C., 1962.

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A CONCEPTUAL FRAMEWORK

The Organizational Role of Supervisor

To understand the role of supervisor, manager, administrator, or leader in a large complex organization, it is necessary first to describe briefly some of the basic elements in the structure and functioning of these complex social systems. Using the primary concepts of organizational objective, task, office, and work group or "organizational family," I will identify the concept of supervisor as a generic term in my thinking about organizations and lay the basis for a discussion of the nature of this essential organizational role.

An organization is designed to accomplish something: this is its objective or purpose. Given the objective, it is possible to plan a division of labor and thus bring into being a structure of tasks. The most basic unit then, in the development of the concept of supervisor, is a task or activity that must be performed to accomplish an objective of an organization. A task therefore is a set of individual behaviors which may involve tools or other physical or human objects directed toward a specific organizational objective. It is a molar unit of behavior that has a particular duration and setting.

An organizational office is a set of these tasks that are performed by a single individual. In a very real sense, the office is the "building block" of the organization in that offices may in turn be grouped together to designate first work groups, departments, and then divisions as units within succeeding larger functional areas in the organization. The tasks that are done in separate offices have to be interrelated if the organization is to accomplish its objective. Whether you think about an organizational objective which has to be divided and subdivided again and again to bring both a vertical and horizontal division of labor into being, or simply in terms of a high degree of specialization of separate tasks, it is clear that the package of tasks which are performed in each office have to be interrelated

if the organization is to accomplish its objectives. The greater the specialization, the greater the need for coordination among organizational offices.

This need brings into existence new tasks and activities of directing, controlling, and coordinating. The tasks within a small group of offices are interrelated and directed by the occupant of a superordinate office. For example, the first-line supervisor's primary job is to direct the activities of the occupant in offices under him (subordinates). The directing of the activities of these supervisors is in turn coordinated by the occupant of the next higher superordinate office (the department head) who has this as one of his primary tasks. The controlling activities of a group of department heads are in turn coordinated by occupants of the next higher echelon in the organization. A division of labor with its high specialization of tasks thus brings into existence a vertical structure of offices--key organizational offices whose occupants have as one of their primary tasks the supervision of the subordinates immediately under them.

Complex organizations are made up of a large number of relatively small face-to-face work groups or organizational families. Each of these units has its own subobjective and sets of specialized tasks to perform. At the same time, the subobjectives and activities of each unit are a part of the total objective of the organization. By design, each of these work units is interlocked with other units through the activities of the generic office of supervisor. An organizational family then is defined as a group of offices occupied by a supervisor and his immediate subordinates in which is lodged the responsibility of meeting a particular subobjective of the organization by accomplishing a particular subgroup of tasks within the total division of labor. Structurally, then the organizational role of the supervisor at any level is primarily one of linking together different parts of the organizational structure of work groups and integrating the specialized performances of these units. This is the role on which the entire system depends to achieve and

maintain unity and coherence. Specifically, at the structural level, the role of the supervisor entails the following functions: (1) the direction and coordination of the tasks and activities of the subordinates within the supervisor's work group; (2) the relating of these activities to those of other work groups at the same organizational level within which his group interacts, and (3) the relating of the activities of his group and his own activities to those of other organizational units operating at the next higher, as well as the next lower level in the organization. This spells out the role of the supervisor as a structural coordinative linking pin, but now we must look at the role social psychologically and see how the supervisor must coordinate individual member needs and goals with organizational objectives.

The raison d'etre of every organization is to accomplish some objective. The physical and mental capacities and energies of men are among the principal means and resources through which the objectives of organizations can be attained. But men--the occupants of the organization's offices--also have their own goals which they want to attain through working in the organization. The interests of the individual members of the organization, and the goals which they are trying to attain, may or may not be the same as, or compatible with, those of the organization. The degree of congruence between the objectives of the organization and the goals of its members varies considerably among different types of organizations. In any case, it is probable that the organizations which are best able to tap the energies of all of their individual members--to meet their members' personal needs, aspirations, and goals--will be more likely to attain their institutional purpose.

One of the basic problems of organizations, then, is how to reconcile, coordinate, or integrate member needs and goals with organizational requirements and objectives. This social psychological aspect of the role of the supervisor in the complex organization is of key importance; it is here that the supervisor must deal with the motivational problem of relating man and system.

The magnitude of this motivational-coordinative linking will vary directly according to the actual and potential discrepancy between organizational and individual goals. The discrepancy can be large or small. It can vary among organizations of different types, from one organizational level to another, within the same organization from one time to another as the organization moves from one stage of its development to another. There will probably be more congruence between the objectives of the organization and the goals of the members in voluntary organizations than in contractual industrial firms; there will probably be more congruence in the upper than in the lower echelons of the organization; and more congruence early in the life of an organization than in its later stages.

Let us look for a minute at what is meant by saying that the magnitude of this problem of integrating or coordinating these two sets of goals--the problem of motivation--varies markedly with the level of the organizational-supervisory role. The principal executive of an organization, working closely with the heads of major departments who, along with him, have a great deal to say about setting organizational objectives and prescribing means for their accomplishment,

faces virtually no problem motivationally. These individuals have either established the objectives of the organization, and/or determined the means of attaining the objectives, or have been selected to fill these positions because their own personal needs and values were congruent with organizational aims. At the other extreme, the first-line supervisor is constantly confronted with the task of making organizational objectives compatible with the needs and goals of his subordinates. Intermediate levels of supervision also have to reconcile the two sets of goals but the problem becomes increasingly less severe at successively higher levels. It is the foreman who has the toughest job in this respect. He ordinarily has had the least to say about the objectives of the organization, but is expected to understand these objectives fully and to make them meaningful imperatives to those under his supervision. To handle this motivational-coordinative linking of organizational objectives and subordinate needs and goals creatively, the supervisor must know a great deal about the organization and the problems it faces and a great deal about immediate subordinates and the problems which each of them feel they face. It is the role of the supervisor to make meaningful the goals of each to the other and in the last analysis to coordinate these two systems of goals and needs. It is almost superfluous but important to say that this task of interlocking personal needs and impersonal objectives frequently requires a very high order of creative and imaginative problem-solving.

Thus, the role of the supervisor contains at least two important classes of coordinative functions: (1) those that are sociologically and structurally required

if each sub-unit's objectives are to be interlocked by this office to give unity to the organization's overall objective, and (2) those that are social psychologically and motivationally required if individual members' energies and goals and organizational objectives are to be interrelated. In general, the first class of structural coordinative functions have been most important and visible at the top of organizational systems, and the second class of motivational-coordinative functions at the bottom or lower levels.

Supervisory Skills

The preceeding discussion of the concept of supervisor has direct implications concerning the essential skills that an occupant of this generic office of supervisor must have. To perform the functions required to coordinate the activities of one organizational family with another, the supervisor must have administrative competence. To integrate organizational objectives with individual member needs, he must have human relations competence. And to accomplish his other assigned tasks, including the performance of concrete day-to-day work functions and specialized sub-objectives, he must possess technical competence.

The marked division of labor and high degree of specialization that characterizes large scale organizations, require that each occupant of a supervisory position have at least the minimum technical competence necessary to understand and direct the work being done within his organizational unit. The higher the degree of specialization and differentiation of activities, the greater the need for supervisors with technical competence in the tasks performed by the unit. Technical skill, or competence, as used here, refers to the ability to use pertinent knowledge, methods, techniques, and equipment necessary for the performance of specific tasks and activities, and for the direction of such performance. Fundamentally, it involves an understanding of, and proficiency in, a specific class of functions in the organization. This includes not only concrete motoric skills of doing things, but also the abstract orientations and basic frames of reference that are normally

associated with particular professional roles and affiliations. Technical skills may be acquired through formal training in professional schools, informal on-the-job training, or combinations of academic and internship or apprenticeship programs.

Just as technical skills are primarily concerned with task-centered competence, human relations skills are concerned with the ability to work with other people effectively. In the case of supervisors, the other people involved are one's subordinates, superiors, other supervisors at the same level, and occasionally staff specialists from other units within the organization. Human relations skill, then, refers to the ability to use pertinent knowledge and methods of working with people and through people. It includes an understanding of general principles of human behavior, particularly those principles which involve the regulation of interpersonal relations and human motivation, and the skillful utilization of this understanding in day-to-day interaction with others in the work situation,

The supervisor with human relations skills not only understands how the principles of behavior affect others but himself as well. He knows how both his own and others' frames of reference color what is perceived and assumed to be reality, how attitudes, beliefs, opinions, and values affect behavior and learning, and how needs and aspirations shape an individual's investment of his energies. Included in this skill is the ability not only to behave toward others--especially subordinates--in a warm, supportive, accepting fashion but the communication skills required to represent the needs and goals of members at different levels in the organization to each other so that each can comprehend the problems faced by the other. Central to human relations skills is the ability of the supervisor to integrate the goals of individuals with the objectives of the organization. The supervisor must be able to identify those needs of others which are central to their self-concept, and to relate these to organizational objectives in a manner that is psychologically meaningful and rewarding to them. At times this will mean simply

coordinating the goals of one's subordinates with those of people in higher levels; at other times, it will mean creating, modifying, or shifting either organizational objectives or individual goals so that an operational congruence or integration between the two can be attained. Basically, the present class of skills involves managing the emotional and motivational dimensions of interpersonal relations in an organization.

The third class of basic supervisory skills deal with administrative competence. Administrative skill, or competence, refers to the ability of the supervisor to think and act in terms of the total system within which he operates--in terms of the organization as a system of people and physical objects, with its own image, structure, and process, which functions as a continuing complex problem-solving arrangement to attain particular objectives. The emphasis here is on understanding and acting according to the objectives of the total organizational system, rather than on the basis of the goals and needs of one's immediate work group only. Administrative skills include such things as planning, programming, and organizing the work; assigning the right tasks to the right people; giving people the right amount of responsibility and authority; inspecting and following up on the work; and coordinating the efforts and activities of different organizational members, levels, and departments. In short, administrative skill requires an ability to conceptualize and comprehend the organizational system as a whole, and to act in terms of this overall organizational framework.

To summarize briefly, it has been suggested that there are three classes of skills which supervisors need to perform in their key role in the formal organization--technical skills, human relations skills, and administrative skills. Technical skills pertain to "know-how" competence regarding particular tasks or activities for which the supervisor is responsible. Human relations skills concern the understanding of organizational members as people with their own problems and needs and

the understanding of the emotional and motivational dimensions of interpersonal relations. Administrative skills deal with the coordinative and integrative activities required for the attainment of the objectives of the total organizational system. Thus, the three kinds of skills concern tasks, people, and organization, respectively.

The Supervisory Skill-Mix

While all supervisors must have some minimum technical skill, some minimum human relations skill, and some minimum administrative skill, we can predict that the mix of these skills varies by level and by time in an organization. What is an effective combination of skills for supervisors at one organizational level may not be an effective skill-mix for supervisors at another level. What is an effective combination at one time in the life of an organization may not be an effective combination at a later period.

Considering first the relativity of this skill-mix by levels, we might expect that at the lower levels of an organization, the technical and human relations skills would be the most important. At the intermediate levels, technical skills would likely be less important and administrative skills more important. And at the top management and executive levels, administrative skills would be the most important. Human relation skills are probably important for supervisors at all levels, but, in view of the earlier suggestion that the motivational problem is not as acute at the higher levels, human relations skills are likely to be comparatively less important as one moves up the hierarchy. Certainly, there are no substitutes for either administrative competence at the top or technical competence at the bottom levels of the organization.

In addition to the variations in skill-mix required at different organizational levels, there is probably a good deal of variation in the skill requirements at different times. Early in the life of an organization, technical and human relations skills are probably essential; later, as the organization becomes more complex, administrative skills become increasingly more crucial. Similarly, during

periods of rapid change, technical skills are likely to become very important. With the initiation of a reorganization, or when a new technology is introduced in the system, upper level supervisory personnel have to draw more heavily on their technical competence at the early stages. During such a period of transition, the problems faced by the organization are basically of a technical character, and their solution depends very greatly on a thorough command of specialized knowledge and technical-analytical ability. But, in the latter stages of reorganization and change, human relations skills assume greater importance once again; after the technical difficulties have been overcome, the remaining organizational problems are frequently of the human relations variety. Thus, it is not enough to think in terms of the combination of the three kinds of supervisory skills required at different organizational levels. It is also necessary to consider the time dimension--how their combination, for a particular level, must vary over time.

The Relativity of "Effective" Supervision

This approach to the leadership role in the formal organization underscores the relativity of supervision. It adds to the complexity of the problem of conceptualization and measurement, but simultaneously reassures in that it appears to be more consistent and meaningful in terms of actual experience of supervisors and administrators at all levels, and researchers working in the field. The problem is to identify the mixtures and combinations of the several classes of skills that are most appropriate in given organizations, for given organizational levels, and at given times. This is not an easy task, but it is a researchable problem. Bits and pieces from a number of different field studies have brought us to this point of understanding of the important problem of what constitutes effective leadership. Perhaps this framework will provide us with a more useful model on which to build and test.¹

¹ It is not an objective of this paper to relate this conceptual framework to the theories of the leadership role of others. This is being done as a part of another publication.

EMPIRICAL RESEARCH FINDINGS

As was indicated at the outset, the preceeding ideas represent my present formulation of this complex role of leadership in formal organization. In a very real sense this conceptualization has been an outgrowth of empirical research findings in our programs of Organizational Behavior and Change in the Survey Research Center at The University of Michigan. We turn now to a consideration of these findings.

Early Program Findings: Productivity Studies

Early in our research we did a series of studies investigating quite empirically the relationship between leadership and group performance. Kahn and Katz² summarized the bits and pieces of information from those several studies concerning the performance of a variety of work groups and the characteristics of each group's supervisor. Using the specific findings from studies in the clerical offices of an insurance company, section gangs on a railroad, and workers in a tractor factory, they concluded that there were four classes of leadership relevant variables which appeared to be consistently related to the productivity of an organization and the psychological returns which the group offers its members. In essence, the findings were as follows:

- (1) Supervisors of more effective groups were better able to play a differentiated role than the supervisors of the less effective groups. This point they derived from specific findings which indicated the better supervisors spent more time in planning what was to be done, in providing necessary materials, and in actual supervision rather than in straight production work.
- (2) The better supervisors delegated authority to others more than the poorer supervisors. This was derived from findings showing that the better supervisors did not supervise as closely, gave less detailed work instruc-

² Kahn, R. L. and Katz, D. "Leadership Practices in Relation to Productivity and Morale." In D. Cartwright and A. Zander (Eds.). Group Dynamics: Research and Theory. Evanston, Illinois: Row, Peterson and Company, 1953. pp. 612-627.

tions, and gave subordinates greater freedom in planning their jobs and setting their own work pace.

- (3) The more effective supervisors were more supportive in their relationships with their subordinates and gave more attention to creating employee motivation. This finding concerning the employee-orientation of the better supervisor was based on a great number of specific relationships about how the better supervisor took a personal interest in the employee as a whole person, was more understanding and less punitive when mistakes were made, was concerned with the training and development of his men, and generally maintained a more open system of communication between himself and his men.
- (4) The supervisors of the more effective groups had work groups which had developed greater cohesiveness among members of the group than those groups which were doing a less effective job. This was based on specific findings indicating that productivity was related to how good a job employees felt their units were doing in comparison to others in getting the job done, the extent to which employees felt identified with their group, and felt they were "really a part of their group."

The Kahn and Katz's first two classes of variables--stressing the supervisor's ability to play a differentiated role and to delegate--pointed to specific components of the supervisor's "administrative skills." In a sense they recognized this in their interpretation of how the differentiated role of the supervisor affected the productivity of the group. They felt that attention given to planning had a direct effect upon the output in the coordination and organization of the tasks of the group. They even spoke of this as a type of engineering or institutional skill in which the technical know-how of the supervisor is brought to bear upon the ordering of the work of the group on a long-range basis. Their third grouping of variables--the supportive, employee-oriented quality of the relationship between the supervisor and his subordinates--is similar with what I am now called "human relations skills."

In retrospect it is now possible to see why our early field research could not have distinguished very clearly among different classes of supervisory skills. For one thing at that time we were focusing on the human relations component of the subordinate-superior relationship. For another, we were studying problems of the foreman and first line supervisors at the very lowest levels of organization where the human relations skills of the superior were highly visible as affecting unit performance. We had not yet had many opportunities to look intensely at the skills required of occupants of departmental and top level executive offices where administrative skills should predominate. And much of our early research dealt with the problems of the supervisor of highly engineered assembly lines of either white or blue collar workers where there was little need for first line supervisors or foremen to have administrative and coordinative skills. It is noteworthy that the specific findings regarding the importance of planning, providing materials for the men, and figuring work out ahead of time came from the railroad study where there were no routinized or machine dictated work flows.

Early Program Findings: Appraisals of Superiors

Another early study which I feel contributed markedly to the development of this present conceptualization of a trilogy of supervisory competences was one relating the Appraisals of Superiors and Attitudes of Their Employees.³ This study, conducted in eight accounting departments of an electric power company, allowed us to compare the summary appraisal ratings made by department heads of first-line supervisors with subordinate's perceptions and attitudes toward these men in the middle.

Each supervisor's appraisal was prepared in writing and agreed to unanimously by four department heads (one of whom was the supervisor's immediate boss) after there had been a discussion of the supervisor and his work. In this appraisal

³Mann, F. C. and Dent, J. K. Appraisals of Supervisors and Attitudes of Their Employees in an Electric Power Company, Ann Arbor, Michigan, Survey Research Center, 1954.

conference the supervisor was finally given one of six evaluations ranging from "Immediately Promotable" to "Unsatisfactory." As a part of another study, we asked the employees under these supervisors to fill out a lengthy questionnaire about their perceptions and satisfactions in the work situation. Most of the questions regarding the supervisor dealt with his human relations skills.

We then analyzed these two bodies of data to see the extent of agreement between the evaluations made of first-line superiors by their department heads and the "evaluations" made of these same superiors by the employees in their work groups. The findings indicated that there was a good deal of agreement in these evaluations for the very effective and the least effective supervisors. For a few of the questions asked of the employees, like "How free do you feel to discuss personal problems with your superior," there was a direct and orderly relationship between the percent who answered "very free" and the appraisal classification given these supervisors by their department heads. To be specific in this case, 54 percent of the employees under supervisors rated as "Immediately Promotable" said they feel "very free" to discuss personal problems with their supervisor, 44 percent of those under "Promotable" said this, 34 percent under those rated "Satisfactory Plus," 30 percent under those appraised as "Satisfactory," 27 percent under those rated by management as "Questionable," and only 19 percent of the employees under the supervisors rated as "Unsatisfactory" said they felt "very free" to discuss personal problems with their supervisor.

For many questions, like the general summary question of "How good is your supervisor in handling people," this relationship was not so clear-cut. Employees under "Promotable" supervisors frequently gave a less favorable (though not statistically significant) report than the employees under "Satisfactory Plus." One day, after we had found that we could not explain this discontinuity by any of the other variables we had measured in the study, we were discussing this anomaly with the company's general accountant. He said without hesitation, "I can probably give you a lead to that. That 'Promotable' group is comprised of supervisors who are accountants and actuaries, technically very competent and whom we expect to

promote to higher jobs later after they have learned to deal with people better. The 'Satisfactory Plus' group, on the other hand, are very skilled in dealing with employees, but who do not yet have the technical and professional training required for promotion to the next level of jobs here where specialized knowledge is so important." The implications of this discussion for my thinking about the importance of recognizing the technical component of a supervisor's role is obvious.

These findings, together with a brief experience with John R. P. French, Jr. and Clayton Hill of teaching graduate students in a business school course on administration leadership about the difference between man-to-man, man-to-small group, and man-to-total-organization---system skills, combined to emphasize the importance of beginning to investigate more systematically the technical, human relations, and administrative classes of skills.

The Study of Supervision in Two Power Plants

The first opportunity that occurred to use this new orientation was in a study of two power plants as prototypes of the more automated plants of the future.⁴ Among other questions concerning foreman practices, the power plant workers were asked to evaluate their foremen on the three dimensions of competence. After a good deal of exploratory interviewing to identify more specifically the kinds of knowledge or behavior being considered, we wrote, pretested; and used three questions as a part of a large battery of items about different aspects of the jobs. These questions were:

How well does your foreman know the technical side of his job--the operation and maintenance of the equipment for which he is responsible?

How well does your foreman do the administrative side of his job--by this we mean planning and scheduling the work, indicating clearly when work is to be finished, assigning the right job to the right man, inspecting and following up on the work that is done, etc.?

⁴Mann, F.C. and Hoffman, L.R. Automation and the Worker: A Study of Social Change in Power Plants. New York: Henry Holt and Company, 1960.

How well does your foreman do the human relations side of his job--
getting people to work well together, getting individuals to
do the best they can, giving recognition for good work done,
letting people know where they stand, etc.?

For each of these questions the respondents were asked to answer in terms of one of five alternatives varying from "He handles these parts of his job extremely well" through "Fairly Well" to "Does not handle these parts of his job at all well."

The first question we wanted to answer was whether the respondents were able to differentiate among the three areas of competence. Zero order product moment correlations ranged from .5 correlations between technical and human relations skills in the two plants to .7 correlations between administrative and human relations skills. These suggested that the nonsupervisory men were distinguishing most clearly between technical and human relations skills of their supervisors and least between administrative and human relations skills. Partial correlations between each of the pairs of skills holding the third constant confirmed this. The partial correlations between technical and human relations skills for the two plants were .2 and .1 and were significantly lower than the other two corresponding partial correlations. The partials between administrative and human relations were .56 for both plants; the partials for technical and administrative in the order of .4.

Having established that the men in these plants were distinguishing most clearly between the technical and human relations skills of their supervisors, the second question we wanted to answer was which of these classes of skills were most important. Since these two plants were highly integrated systems and moreover one of the plants was new and even more automated technologically, we found we could not obtain any comparable "hard criteria"--like operating or efficiency statistics--by work groups to assess the importance of the different supervisory skills. The one criterion of supervisory effectiveness which was available to us was the satisfaction of the men with their immediate supervisors. As a part of our battery of questions, each man had been asked, "Taking all things into consideration, how

satisfied are you with your immediate supervisor." We used this.

Zero-order correlations between the worker's perceptions of his supervisor's competencies and the worker's overall satisfaction with his supervisor again ranged from the upper fifties to .76. Again the story was in the partial correlations. When each of the skills was correlated with satisfaction, holding the effect of the other skills constant, we found that the men's perceptions of their foreman's human relations skills were more definitely associated with their satisfaction with his supervision than the men's perceptions of the foreman's technical skill or administrative competence. In both plants, the partial correlation between perceived human relations competence and employee satisfaction with his supervisor was significantly greater than the partial correlation between the perceived technical competence and employee satisfaction. Using the criterion of employee satisfaction with supervisors as the measure of effectiveness, the most important function of the supervisor was his ability to deal with his subordinates as human beings rather than his ability to handle technical equipment. And the relative importance of these two factors seemed to have been the same for the supervisors in both the more automated and the older plant.

In addition to the trilogy questions, our questionnaire asked for information about how the men saw or evaluated their foremen in terms of 30 other specific supervisory behaviors. Some specific questions dealt with bits of behavior that you could be relatively certain would be characteristic of a supervisor who was competent in human relations skills--how considerate he is of men's feelings, whether he recognized good work by praising sincerely and thoroughly, etc. Other items could be characteristic of supervisors who were competent in both technical and human relations skills--or in perhaps only technical--or neither.

Since the men had been least clear in distinguishing administrative from human relations and technical skills, we decided to see whether the men saw these specific supervisory behaviors as primarily related to the human relations or technical competence of their supervisor. Partial correlations, partialing out the effects of first

human relations and then technical competence, showed that 13 of our specific supervisory behavior items were primarily associated with the men's perception of their supervisor's human relations skills. Taken as a whole, these items suggested that the foreman with whom employees were most satisfied was the man who considered them as individuals, both in his relations to them on the job and in seeing that they got ahead in the organization.

A second group of five specific supervisory behaviors, related to both human relations and technical competence, suggested that some supervisory behaviors serve a dual function. These behaviors as a class appeared to be task facilitating. However they required the foreman to display a certain degree of understanding for the worker as a man, as well as knowledge about the technical aspects of the job. Our hypothesis was these would be most highly related to a criterion of productivity-- if we had had one. Our assumption was that productivity would be gained by a foreman's consideration of his employees in the way he imported his technical knowledge to them.

The remainder of the specific supervisory behaviors were unrelated to either the foreman's technical or human relations competence or were not consistently related to one or the other of these two competences in both plants. This analysis ^{been} of specific behaviors indicated that our research had/focused primarily on the human relations skills of the supervisory role.

In summary, this first study using the trilogy of supervisory skills indicated that (1) nonsupervisory men in power plants were distinguishing most clearly between the technical and human relations skills of their superiors, (2) the men's overall satisfaction with their supervisor was primarily related to their perceptions of his human relations skills, and (3) our questions about the specific behaviors of supervisors were focused primarily on the human relations dimension of the leadership role.

Supervision at Different Levels in Community General Hospitals

The next opportunity we had to contribute further empirically to the building

of our conceptual framework regarding this role of the supervisor came when we undertook a study of the administrative problems in the community general hospital.⁵ In our study of ten short-stay hospitals with from 100 to 350 beds, the set of three questions regarding supervisory competences was asked of five groups of respondents in each hospital: the administrative department heads, supervisory nurses, nonsupervisory registered nurses, practical nurses, and laboratory and X-ray technicians. As in the power plant study, the respondents were asked first to indicate the name of their immediate supervisor, and then to answer the trilogy questions along with others about how they saw this person's supervision.

Simple analyses, comparing the percentages for the ten hospitals combined with those from the power plants, indicated that all groups of respondents in the hospitals perceived their supervisors as handling the three classes of skills better than the men in the power plants saw their foremen handling their three classes of skills. Moreover, every group in the hospital evaluated their supervisors higher on technical skill than on administrative skill than on human relations skill. (There had been no clear ordering relationship among these three in the first study.)

The findings from the nonsupervisory registered nurses for the ten hospitals combined is illustrative of the pattern of responses found in the answers from the other groups and levels in the hospital. Eight out of ten (81 percent) of these nurses perceived their immediate supervisor as handling the technical role of the job extremely well or very well, 72 percent as handling the administrative side equally well, and 68 percent perceive the supervisor as handling the human relations side equally well. The differences among the groups in how highly they evaluated their supervisor's skills were not very great with the exception of the technicians. The personnel in the laboratories and X-ray was a good deal more critical about the administrative

⁵Georgopoulos, B. S. and Mann, F. C. The Community General Hospital. New York: The Macmillan Company, 1962.

and human relations skills of their immediate superiors.

Having established that the occupants of the supervisory offices in these ten hospitals were generally seen by subordinates as strongest on technical skill and weakest on human relations skill, we then looked at the question of how interrelated the three skills were. Simple rank-order correlations across the hospitals showed that the three skills were highly and significantly related to one another, with only an occasional exception. In general these simple correlations, using hospitals rather than individuals as the unit of analysis, showed that technical and human relations skills were the least closely related and technical and administrative skills were the most closely related. Administrative and human relations skills occupied an intermediate position.

Of particular importance in the development of our theoretical thinking was the fact that we found the relationship among the three skills tending to vary from one level of supervision to another. From both simple rank-order and simple tau-correlations, the three skills were found most highly interrelated when using data from the practical nurses, and the least highly related when using data from the technicians and department heads about their supervisors. Looking at the relationship among the three skills based on data from the three nursing groups, we found that the relationship between technical and human relations skills decreased as we moved up the hierarchy, i. e., going from practical, through registered, to supervisory nurses, and the same trend tended to be true for the relationship between technical and administrative skills.

We then investigated how clearly each of the three skills is distinguished in the hospital as an organization. In spite of the limitations of a population of only ten hospitals we computed partial tau-correlations among the three supervisory skills for each group. While you can not compute partial Rho-correlations with an N as small as ten, you can compute partial taus. There are no tests of significance for the latter, of course. The findings from this computation indicated that:

1. When the effects of administrative skill are held constant, the relationship between technical and human relations skills in the ten hospitals is very small for each supervisory level. The partial tau for the department heads was .15, for the technicians-- .01, for the supervisory nurses .07, and .33 and .30 for the registered and practical nurses, respectively.
2. When the effects of technical skill are eliminated, the relationship between human relations and administrative skills is small to moderate--ranging from .15 for department heads to .51 for supervisory nurses.
3. When the effects of human relations skills are removed, the relationship between technical and administrative skills is moderate to high, ranging from .42 to .72.

By level or group, the partial taus suggest that:

1. Department heads most clearly distinguish between technical and human relations, and human relations and administrative skills, and the least between technical and administrative skills.
2. Laboratory and X-ray technicians and supervisory nurses distinguish the most clearly between technical and human relations skills.
3. The nonsupervisory registered nurses, the most clearly between the human relations and administrative skills of their superiors.
4. As in the case of the simple correlational analyses, the practical nurses were the least discriminating of the five groups. However, their greatest discrimination was between technical and human relations skills.

As in the case of the power plant study, the next question we wanted to ascertain was how each of these three skills of supervisory personnel in the hospitals related to the satisfaction of subordinates with supervision. Again we used a summary question regarding satisfaction with the immediate supervisor: "Taking all things into consideration, how satisfied are you with your immediate supervisor?"

As might be expected, simple correlations indicated that each of the three skills was positively and significantly related to the satisfaction of subordinates with their

supervisors. This held for all groups except the practical nurses--the group that distinguished least well among these skills. Again the story was in the partial correlations, and again we had to use partial taus because of the small number of organizations being used.

The findings from this analysis indicated that when the effects of the second and third skills are partialled out statistically that:

1. Technicians' satisfaction with their supervisors is primarily associated with the technicians' perceptions of the supervisor's technical (.54) and human relations skills (.56).
2. Supervisory nurses' satisfaction with their immediate supervisors is primarily related to their perception of their superior's human relations skills. (.71).
3. Department heads' satisfaction with their immediate supervisor (the administrator) is primarily related to their perception of his administrative skill. (.73)

For the other groups--the registered nurses and the practical nurses--satisfaction with the superior was not highly related to any one or combination of their superior's skill in dealing with the tasks, the people, or the organization.

The most important findings here in terms of our framework regarding the role of the supervisor in formal organization were that technical and human relations skills of the supervisor tended to be the most highly related to satisfaction with the supervisor for the lower level laboratory and X-ray groups, and administrative skills (with human relations skills only a poor second) were primarily related to satisfaction for the top level group in the hospital--the department heads.

In summary then, the findings from five different groups and several different levels in the hospital study suggested that the mix of supervisory skills varied by level and that different skills or skill-mixes were related to our satisfaction-with-the-supervisor criterion.

Supervision During a Change-Over To Electric Data Processing Equipment

Observations and measures taken during a study of the organizational turmoil involved in a change-over to electric data processing equipment gave us a chance to contribute another dimension to our thinking about this role of the supervisor.⁶ 7

This was the dimension of time. As we observed over a period of four years the problems faced by the different levels of supervisors in the accounting department of a large electric company as these men directed the major reorganization required for the transition from IBM 400 series equipment through 650's to a 705, we came to feel that superiors had to be able to draw upon different combinations of skills at different times. During such a long period of change, different combinations of the three skills appeared to be required at different levels in the organization at the same time, and of the same supervisors at different times. In general, there seemed to be a shift in emphasis from human relations to technical and administrative skill, and back again to human relations skills at the end of the transition period. When the organization was relatively stable before the change-over started, the supervisors seemed to be drawing heavily upon their abilities that insured organizational maintenance and effective human relations. By contrast, the transitional period placed heavy demands on the supervisors' technical and cognitive skills. The problems of the transition period were basically technical and administrative, and only these kinds of skill and knowledge could solve them. Human relations skills were not unimportant, but the job of laying out operationally feasible plans for complex changes in the accounting systems demanded competences other than human relations. Superiors without adequate resources in all three skill components found their jobs extremely difficult at different periods during the transition.

As we followed the change through different periods of the change-over, we felt that we could discern the movement of demand for different types of skills from one level to another in an organization. For example, with the announcement of the

⁶Mann, F.C. and Williams, L.K. "Organizational Impact of White Collar Automation" In Proceedings of Eleventh Annual Meeting of Industrial Relations Research Association, Chicago, December, 1958. Publication 22, 1959, pp. 55-69.

⁷Mann, F.C. and Williams, L.K. "Observations on the Dynamics of a Change to : Electronic Data Processing Equipment." Administrative Science Quarterly, September 1960, Volume 5, pp. 217 - 256.

general plan to change to electric data processing, the top levels of the management were primarily concerned with how to begin to implement the change administratively and technically, while the lower levels were concerned with allaying the fears that employees had regarding what the change held for them. As the upper levels laid out general objectives for handling the change administratively and began to get the intermediate and lower levels of supervision involved in translating and implementing these changes into the technical work flows of the system, human relations problems which could not be fully handled at the lower levels moved up to the top echelons for policy determination. And so on almost cyclically.

While this type of insight into the effect of different temporal situational demands on the skill-mix of the effective supervisor came from our anthropological observations of the organization, we were not content to leave it at that. Therefore, in the battery of questionnaire items that we gave to this population of employees as after measures on this natural field experiment, we asked the personnel to answer the following question:

Thinking back on your experience during the change-over, which one of the following supervisory qualities was most important to you at the time?

It was most important during the change over that my supervisor: (Check one)

1. Consult our group whenever there was a common problem
2. Plan and schedule work of our group
3. Be able to "iron out" the technical snags our group was having trouble with
4. Understand each of the jobs in our group
5. Listen to the problems that I and others in our group had

Of these five alternatives, the first and last were designed to be concerned with human relations skills, the third and fourth technical skills, and the second related to administrative skill. Since we had only one alternative regarding the administrative skill area, we focused our attention in this analysis on the human relations and technical skills of the supervisors. The responses of employees in

each work group were looked at separately and categorized as to whether the employees considered technical or human relations skills to be the most important. The work groups were then divided into three classes:

- a. Those centrally involved in the change
- b. Those marginally involved in the change
- c. Those which were essentially unaffected by the change
to electric data processing

In the major change work groups the technical skill of the supervisor was the most important; in the nonchange work groups human relations skills were found to be the most important. Of the 22 groups most highly involved in the change, employees in 17 indicated that technical skills were the most important, employees in only 5 groups said that human relations skills were the most important. Of the 12 groups that were only marginally involved in the change, one-half identified technical as the most important, the other half human relations skills. Of the 12 groups which were not involved in the change-over, eight stated that human relations skills were the most important, four that technical skills were the most important. Statistical tests indicated that these differences were significant beyond the .05 level.

While these findings based on measures taken after the change-over could not demonstrate the cyclical way in which different supervisory skills appeared to be required at different times in the conversion, they do provide some confirmation that different skills are needed at different times. In those areas where the tasks were highly ambiguous and unstructured, there was apparently a greater demand for technical competence on the part of the supervisors. In the nonchange groups, by contrast, the human relations skills were the most important.

Parenthetically it is interesting to note that within the major change work groups four of the five supervisory units that indicated that human relations skills were most important, also described their supervisor as highly inefficient at human relations. The mean human relations skill index score for this group of supervisors was definitely lower than that of the remaining supervisors in the major change work

groups. This difference approached but was not statistically significant. This partial finding serves to indicate that other skills are not necessarily unimportant at any specific period of change. Rather that one of these three skills will predominate at any given time in an organization. Thus while technical skills were perhaps highly important for the individuals in these five groups, the fact that the supervisors were inadequate in human relations created problems which resulted in employees perceiving the human relations ingredient as being highly requisite during the change.

To investigate further the importance of these different groups of skills at different times, we examined the relationship between employees' perceptions of their supervisor's technical and human relations skills and the employees' overall satisfaction with their immediate supervisor. Two groups of employees were identified: those whose jobs were highly related to the new electric data processing system and had thus been exposed to a lot of change, and those whose jobs were not at all related to the new electric data processing system and had thus not been exposed to much change. Findings from both groups indicated that employee satisfaction with their supervisor is more highly associated with their evaluation of his human relations than his technical skill. However, satisfaction with the immediate supervisor was more highly related to the evaluation of technical skills for the employees whose jobs were highly related to the new electric data processing system than for the employees whose jobs were not at all related to the new system. This finding provides further evidence of the greater importance of technical skills for supervisors in a period of change.

It was on the basis of these findings from observations, semi-structured interviews, and quantitative measures around the introduction of electronic data processing equipment in the accounting departments that we began to be able to see how the skill mix of a supervisor varied by time as well as by level in an organization.

At Different Stages in the Life Cycle of an Industrial Plant

To extend further our understanding of this conceptual approach to leadership

in formal organizations, we are currently studying the skill mix of supervisor's at three different levels in six power plants which are arranged along a continuum from plants that are new or just being rebuilt to those that are almost technologically obsolete and almost ready to be moth-balled.

Using the same type of single item questions regarding technical, human relations, and administrative skills, we have found the following additional facts:

- (1) There is a direct relationship between level and the extent to which subordinates are able to distinguish between their supervisor's technical and human relations skills. The higher the level, the sharper the distinction. (The correlation between technical and human relations skills, with administrative partialled out, dropping from .30 for nonsupervisory men to .23 for supervisors, and .10 for middle management.)
- (2) Men in new plants distinguish more sharply between their immediate supervisor's technical and human relations skills than men in older plants. (Partial correlations being .17 and .16 in contrast to partial correlations in the upper thirties and lower forties)
- (3) Foremen in new plants distinguish technical from administrative skills more clearly than foremen in older plants. (Partial correlations being .00 and .02 in new plants when human relations skills are held constant statistically in contrast to correlations in the fifties and seventies for foremen in older plants)
- (4) The satisfaction of foremen with their supervisor's in the new plants is more highly related to their percep-

(4) Continued

tion of their immediate supervisor's administrative skills than his technical or human relations skills.

(5) Foremen in the oldest plant are less able than foremen in other plants to distinguish between the technical, human relations, and administrative skills of their immediate superiors in the front office.

(6) In the oldest plant both the men's and the foreman's satisfaction with their immediate supervisors is more associated with their estimate of his human relations skills than with their estimate of his technical or administrative skills.

In sum, these findings suggest that it is in the new, more highly automated plants that men can distinguish most clearly between their foremen's technical and human relations skills, that foremen can distinguish most clearly between their front office bosses' technical and administrative skills. It is in the older plant--those about to be shut down and where there is little chance to demonstrate technical or skills other than human relations--that foremen can not distinguish among these three skills, and the satisfaction of both the foremen and their men is most highly associated with the supervisor's skills in dealing with people as human beings. Thus, late in the life cycle of a plant it seems that human relations becomes the most important element in the skill-mix of supervision.

Recognizing the limitation of the single items in measuring supervisory competence in the three areas, the current study in power plants was also designed to allow us to construct multiple item indices. Three levels of subordinates were asked not only the three summary measures but from 17 to 27 additional questions about the specific behavior and knowledge of their supervisors. The answers given by each level were factor analyzed. Three factors were identified empirically -- technical, human relations, and administrative skill -- and items specific to each dimension were combined into indices. The technical skill index contained three items;

When one of the men at your level doesn't know how to do a job, how frequently does your immediate supervisor have the "job know-how" to explain how it is done?

How much does your supervisor know about doing each of the jobs in your area?

How much does your immediate supervisor know about the equipment you are responsible for?

The human relations skill index contained five items:

Do you feel that your supervisor will go to bat or stand up for you?

In solving the job problems, does your supervisor generally try to get the ideas and opinions of you and the other people at your level?

How often does your immediate supervisor express appreciation for your work?

How free do you feel to discuss important things about your job with your supervisor?

How much help do you feel you get from your supervisor when you really need it?

The administrative skill index was made up of three items:

How frequently is work time lost because your supervisor fails to do the proper scheduling and planning?

How frequently have you been assigned to do a job only to find that someone else was also assigned to do the very same thing?

To what extent does your supervisor keep up to date on new policies, rules, and regulations?

Our findings indicate that the highest interitem correlations were found in the technical skill area, with the human relations skill area second, and the administrative skill area third. This was true for all three levels of respondents. Correlations between our single summary items and their respective indices indicate that the individual item regarding human relations skills was more highly correlated with its corresponding multiple item index score than for either technical skills or administrative skill.

Having established more sensitive measures of the three supervisory skills, we are now turning to the investigation of how the skill-mix of the supervisor, as perceived by his subordinates, is related to the supervisor's own report of his work situation satisfactions, his worries, and his health complaints. Let us look first at the analyses that have dealt with the first-line supervisor. In the six power plants we found that there were about ninety work groups in which we could match the supervisor and his employees, and in which at least three or more of the men had given us evaluations of their supervisor's three skills. While our initial hope had been to divide the distribution for each skill into thirds -- high, middle, and low -- with only ninety work groups it was not possible to use such a highly complex analysis design and still test the significance of our findings statistically. Drawing on our knowledge that nonsupervisory employees distinguish most clearly between their supervisor's technical and human relations skills and are not as able to identify administrative skills, we have concentrated our first investigations at this level on the factors associated with different mixes of technical and human relations skills. Five groups of first-line supervisors were established by dividing their men's evaluations of them on each of these two skill areas into thirds. Three of these groups have consistent ratings -- the same rank in the two skill areas, i.e., high on both, medium on

both, or low on both; two of the groups are made up of supervisors with inconsistent ratings; i.e., higher on technical than human relations skills or higher on human relations than technical skills. The five patterns and the number of supervisors in each are shown below:

Skill-Mix Pattern	Number of Supervisors
High - high	20
Medium - medium	21
Low - low	10
Human relations higher than technical	16
Technical higher than human relations	<u>21</u>
Total	89

Analysis of variance tests showed that these groups did not differ significantly on such background characteristics as age, education, or length of service as a supervisor. Different groups did, however, differ markedly from one another with respect to how the foremen themselves saw their work situation, how satisfied they were with different aspects of it, what kinds of things these foremen were worrying about, and what they had to say about their own health complaints. It will not be possible to show within the limitations of this chapter how each of these groups differed from the other, but broad patterns of results can be given. We will focus particularly on three of these key patterns.

The High-High Pattern. First-line supervisors evaluated by the men in their work groups as being high on both technical and human relations skills are different from supervisors in one or another of the other groups in that they --

. . . are less satisfied with their immediate supervisor -- especially his administrative skills, and

. . . are less satisfied in general with the men who are their superiors in the front office of the plant.

They have a higher evaluation of how well their work group does in comparison with other similar work groups in getting the job done.

They do not feel in the middle between the workers and top management.

They worry less that a problem might come up that they would not be able to handle.

And they worry less about their job mobility -- about "failure to get ahead" or being "in a rut."

They have fewer health complaints in general.

Specifically by their own report they are less troubled with

. . . insomnia - nervousness

. . . cardiac awareness

. . . gas-acid stomach and ulcer trouble

. . . stiffness and arthritis.

The Technical Higher Than Human Relations Pattern. Supervisors evaluated as longer on technical than human relations skills by their subordinates are different from other supervisors in that they --

. . . are generally less satisfied with

their promotional opportunities

their present wages

the job itself

the training they have had for their job

but they are more satisfied with their superiors in the front office
of the plant.

They are clearly distinguished in feeling in the middle between the workers
and top management and being bothered by it.

They score high on a scale designed to measure propensity to take risks.

Their worries are mostly concerned with what they perceive to be their
failure to get ahead and they feel in a rut.

They score high on measures of insomnia and nervousness and on cardiac
awareness.

The Human Relations Higher Than Technical Pattern. Supervisors perceived
by their men as being more competent on human relations than on the technical
dimensions of their jobs are different from other supervisors in that they --

. . . are generally more satisfied with

the training they have had for their job

their immediate supervisor -- especially his administrative skills

the men who are their superiors in the front office of the plant --

in all three skill areas

how well their plant is managed in general.

They do not feel in the middle between the workers and top management.

They score low on our measure of risk taking propensity.

They worry about their job performance

- whether they can do what is expected of them
- whether they can handle a problem that might come up
- about how good a job they are doing.

Moreover they worry more often about the possibility of losing their job.

They also complain more frequently about certain aspects of their health, particularly

- insomnia and nervousness
- stiffness and arthritis

In this latter respect they are markedly different from other groups.

The Other Two Congruent Patterns: Medium-medium and Low-low. The supervisors evaluated as having technical and human relations skills within the middle third of the distributions for these skills were not markedly different from other groups of supervisors. They are more satisfied with their present wages, worry less than others about the kind of a job they are doing or about losing their job, and generally have a lower evaluation of how good their work group is in getting the job done. In other respects they are not different. The pattern of responses for the ten supervisors who were rated as low on both sets of skills suggests they are not at all satisfied with their wages, their training or the men who are their superiors in the front office of their plant. They feel in the middle and under considerable pressure, are often irritated and annoyed with the way things are going, and feel the men in their work group do not understand the problems a supervisor has to face. They do not report worrying about their job nor do they complain about their health. To find that this latter group (the low-lows) were not worried about their jobs and reported no health complaints was surprising. Two hypotheses are possible: (a) these ten men were unwilling to admit they had

any worries or problems in this area, or (b) that this small group of supervisors knew the company would tolerate their inadequacies until their retirement. Either or both of these hypotheses may have been operative.

These findings about how first-line supervisors with different patterns of technical and human relations skills in highly integrated plants see and feel about different aspects of their work situations, their worries and health complaints provide evidence of how essential it is to have the correct skill-mix for a particular level in an organization. Supervisors evaluated by their men as being strong on both technical and human relations -- probably the ideal mix for foremen at this level -- felt less "in the middle" regarding problems between the workers and top management and were less bothered by being the linking pin between these two groups. They were less worried about their job performance and their mobility. They had fewer complaints about their health. Supervisors with something less than this ideal mix of technical and human relations skill were having problems in one or several aspects of their work situation, were more likely to be worrying about things, or to be reporting trouble with their health. The few foremen who were seen as short on both skill dimensions felt in the middle, under considerable pressure, and often irritated and annoyed at the way things were going. The foremen who were long on technical and short on human relations skills felt most in the middle and were most bothered by it. They were worrying about their failure to get ahead and complained of insomnia-nervousness and some anxiety about the functioning of their heart. The foremen who were long on human relations and short on technical skills, while not indicating they felt in the middle between the worker and top management, were not better off than their counterparts who had the opposite set of strengths and weaknesses. They were clearly worrying about their job performance and were uneasy about losing their

jobs as foremen. They reported they did not sleep well, were nervous and tense, and more often had stiffness or aching joints, or muscles and rheumatism or arthritis. Thus, it would appear that it costs an individual a good deal to try and fulfill the office of first-line supervisor in a power plant with anything less than a high order of both technical and human relations skills.

These data demonstrate the manner in which we are now using this conceptual approach to identify different groups of supervisors at different levels of an organization with different mixes of skills and then investigating how these mixes are related to the supervisor's perceptions of his situation, attitudes toward various aspects of his job, and his own report of his physical and mental health. Similar analyses of the role of the second line supervisor and of the key management offices in power plants are now underway.

SUMMARY

This chapter presents theory and data from an ongoing sequence of organizational field studies in which the role of supervisory and administrative behavior is being investigated. The sites have included power plants, community general hospitals, and accounting and clerical units. The emergent findings suggest the usefulness of conceptualizing the generic role of supervisor as interlocking organizational families and interrelating organizational objectives and requirements with the needs, goals, and behaviors of the members of his unit. Three different classes of skills seem to be required of supervisors and managers: technical, human relations, and administrative--skills concerned with tasks, people, and organizations, respectively. Findings indicate that 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 and at different times in the life of an organization.