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THE LEADERSHIP ROLE OF MILITARY AND CIVILIAN SUPERVISORS IN A MILITARY SETTING AS PERCEIVED BY SUPERIORS AND SUBORDINATES

CHARLES RUSSELL HOLLOMAN

1965

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by

CHARLES RUSSELL HOLLOMAN

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We have carefully read the dissertation entitled The Leadership Role of Military and Civilian Supervisors in a Military Setting as Perceived by Superiors and Subordinates submitted by Charles Russell Holloman in partial fulfillment of the requirements of the degree of Doctor of Business Administration and recommend its acceptance. In support of this recommendation we present the following joint statement of evaluation to be filed with the dissertation.

This study adds a new dimension to the research literature on leadership. It provides data which permit an analysis of leadership behavior in non-combat military organizations where both military and civilian supervisors may share common superiors and subordinates. Hence, a comparison may be drawn between the perceptions that superiors and subordinates have of the leadership roles of such supervisors. Quantitative measures of expectations and attitudes were determined along the leadership dimensions of consideration and initiating structure using questionnaires developed by the Personnel Research Board of Ohio State. The significance of differences between mean scores and variances developed from the questionnaires were determined using the "t" and the "F" ratio. The study suggests that supervisors in military organizations (1) are not as authoritarian in their behavior as they are generally believed to be; (2) can successfully structure the work situation, and influence and motivate subordinates while still showing the consideration expected by their subordinates. These findings have practical implications for military traditionalists who tend to cling to the authoritarian ethic as the only way to organize and administer even non-combat military forces. This study is well conceived and executed and it fully meets the requirements for the degree of Doctor of Business Administration.

DISSERTATION READING COMMITTEE: Henry P. Knowles

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DOCTOR OF BUSINESS ADMINISTRATION

In presenting this thesis in partial fulfillment of the requirements for an advanced degree at the University of Washington, I agree that the Library shall make it freely available for inspection. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by my major professor or, in his absence, by the Director of Libraries. It is understood that any copying or publication of this thesis for financial gain shall not be allowed without my written permission.

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Date April 19, 1965

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Sincere thanks is given to the United States Air Force and the United State Air Force Academy for making it possible for me to undertake this study. I hasten to add, however, that the conclusions, opinions, and other statements made in this dissertation are my own and not necessarily those of the United States Air Force or the Air Force Academy.

This study would have been extremely difficult without the wholehearted co-operation of the unit commanders and staff agency heads at the research site. To them and to the many persons who actually participated in completing the questionnaires I want to express my appreciation, even though they cannot be named.

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Finally, I am grateful to my wife, Lenora, for her constant understanding and encouragement, and to my children, Suzanne and Mark, who, at an early age, included the word "dissertation" in their vocabularies. It is to them that this study is dedicated.

ABSTRACT

THE LEADERSHIP ROLE OF MILITARY AND CIVILIAN SUPERVISORS IN A MILITARY SETTING AS PERCEIVED BY SUPERIORS AND SUBORDINATES

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Chairman of Supervisory Committee:
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This study was undertaken to determine the variation in perceptions which superiors and subordinates have of the leadership role of first-line military and civilian supervisors in an Air Force Organization. A secondary purpose of the study was to determine whether military and civilian supervisors tend to be superior-oriented or subordinate-oriented in their leadership behavior attitudes. The general hypothesis was that there are differentiated perceptions of the leadership role of the supervisor both between and within the two personnel components (superiors and subordinates) with which the supervisor must interact. Eight specific hypotheses were formulated with respect to the research objectives.

A total of 300 subjects were tested, 100 subjects in each of the component groups of superiors, supervisors, and subordinates. Each component group was composed of 50 military and 50 civilian persons. Superiors and subordinates were asked to describe their perceptions of the leadership role of military and civilian first-line supervisors. The supervisors were asked to describe their own leadership behavior attitudes. Quantitative description of the variables was obtained through use of questionnaires developed by the Personnel Research Board,

The Ohio State University. Expectations and attitudes were described in terms of two essentially independent dimensions of leadership behavior which are called consideration and initiating structure. Consideration relates to the human factor, including mutual trust, respect for and rapport with subordinates, and other behavioral patterns commonly associated with democratic leadership. Initiating structure refers to the efforts of a supervisor to establish well-defined patterns of organization, channels of communication, and ways of getting the job done. Statistical tests of significance of the difference between mean scores and variances included the "t" test and the "F" ratio.

A major finding was that both superiors and subordinates expect the military supervisor to be more highly structured than the civilian supervisor in his leadership behavior. With respect to consideration, superiors perceived the civilian supervisor to be more considerate while subordinates perceived the military supervisor to be more considerate. Superiors reflected a significantly greater unanimity of opinion in their perceptions of the leadership role of military and civilian supervisors than did subordinates.

Some discernible patterns of differences and similarities in the perceptions of superiors and subordinates were revealed. Between military and civilian superiors no significant differences were found. Neither were there any significant differences found to exist between the perceptions of military subordinates and those of civilian subordinates. But in comparisons of military superiors and military subordinates significant differences were found. Military superiors expect the leadership behavior of supervisors to be more considerate and more

structured than do military subordinates. Similar differences were found between civilian superiors and civilian subordinates.

Military and civilian supervisors appear to exercise an optimal combination of consideration and initiating structure in their leadership attitudes, dependent upon situational factors. With respect to consideration, the leadership attitudes of both military and civilian supervisors tend to approximate the expectations of subordinates. With respect to structure, however, their leadership attitudes tend to approximate the expectations of superiors. This finding suggests that supervisors in military organizations can successfully structure the work situation, exert influence, and motivate subordinates to work toward group goals and still show the consideration expected by subordinates. Interestingly, military and civilian supervisors do not believe they should be as considerate as superiors expect them to be.

The findings of this study have both theoretical and practical implications. There is evidence that supervisors in military organizations are not as authoritarian in their leadership behavior as they are generally believed to be. Civilian persons working in a military environment evidence the same patterns of expectations and attitudes as do their military counterparts. The findings appear to be applicable to military management and organization with respect to a number of personnel and leadership practices. Finally, the findings can serve as useful predictors of individual behavior in situations where military and civilian persons work side by side in supervisory or operative positions.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

As is true in business and industrial organizations, successful leadership in military organizations requires the leader to be mindful of the needs and expectations of those personnel components which make up his work environment. Psychologists have long recognized the importance of these social aspects of the work environment as variables in explaining leadership behavior. Of the various personnel components with which the leader must interact, his superiors and his subordinates are generally considered to be the most important. This study was designed as a pilot study to determine the variation in perceptions which these two components have of the leadership role of first-line military and civilian supervisors in an Air Force organization.

The present study can be described as a "perceptual component approach" because the methodology is concerned with the perceptions which these two personnel components have of the leadership role of the supervisor. In many military organizations, unlike business and industrial organizations, these personnel components are often made up of both military and civilian personnel. The general hypothesis postulates that there are differentiated perceptions of the leadership role of the supervisor both between and within the two personnel components with which the supervisor in military organizations must interact.

A secondary purpose of this study is to determine whether supervisors in military organizations tend to be superior-oriented or subordinate-oriented in their leadership behavior attitudes.

This chapter will introduce the problem under investigation and offer evidence of the importance of this particular research. Specific research questions and hypotheses will be delineated. A survey of the relevant literature and the development of a theoretical frame of reference for the study will comprise Chapter II. Chapter III will describe the methods of research and the sources of the data. The research findings will be presented in Chapter IV and the discussion and conclusions will comprise Chapter V.

I. DEFINITION OF TERMS

Definition and clarification of terms is a necessary part of any study. Certain terms are of immediate applicability. In this section these terms will be defined, and a description will be made of their usage within the context of this study.

Consideration and Initiating Structure

"Consideration" and "initiating structure" are descriptive terms given to two factors or dimensions of leadership behavior which have emerged from a long-term research program on leadership by the Personnel Research Board of The Ohio State University.[1] Questionnaires developed by the Personnel Research Board quantitatively measure leadership behavior in terms of these two factors, which are essentially independent. The present study employs two of these instruments, which will be fully

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[1]Ralph M. Stogdill and A. E. Coons (eds.), Leader Behavior: Its Description and Measurement (Columbus: The Ohio State University, Bureau of Business Research, Research Monograph No. 88, 1957).

described in Chapter III. These two dimensions of leadership behavior have been described as follows:

> Consideration--Items with high positive loadings on this factor were associated with behavior indicative of friendship, mutual trust, respect, and a certain warmth between the leader and his group. High negative feelings appear on items which suggest that the leader is arbitrary and impersonal in his relations with group members.
> Initiating Structure--Items with high positive loadings on this factor imply that the leader organizes and defines the relationship between himself and the members of his group. He tends to define the role which he expects each member to assume, and endeavors to establish well-defined patterns of organization, channels of communication, and ways of getting the job done.[2]

More generally, consideration is defined as:

> . . . the extent to which an individual is likely to have job relationships characterized by mutual trust, respect for subordinates' ideas, consideration of their feelings, and a certain warmth between supervisor and subordinates. A high score is indicative of a climate of good rapport and two-way communication. A low score indicates the supervisor is likely to be more impersonal in his relations with group members.[3]

This dimension of leadership behavior bears a close similarity to the "employee-centered" behavior described by Likert.[4] It may be equated generally to permissive, human relations-oriented, and democratic behavior.

Initiating structure may be more generally defined as:

> . . . the extent to which an individual is likely to define and structure his own role and those of his subordinates toward goal attainment. A high score on this dimension characterizes

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[2]Edwin A. Fleishman, E. F. Harris, and H. E. Burtt, Leadership and Supervision in Industry (Columbus: The Ohio State University, Bureau of Educational Research Monographs, No. 33, 1955), p. 27.

[3]Edwin A. Fleishman, Manual for Leadership Opinion Questionnaire (Chicago: Science Research Associates, Inc., 1960), p. 3.

[4]Rensis Likert, New Patterns of Management (New York: McGraw-Hill Book Company, Inc., 1961), p. 7.

> individuals who play a more active role in directing group activities through planning, communicating information, scheduling, criticizing, trying out new ideas, etc.[5]

This dimension of leadership behavior can be generally equated to Likert's description of "production-centered" behavior.[6]

Both of these terms will be used extensively in this study. When used in this study, "structure" will refer to "Initiating Structure." Further description of these terms will be given in Chapter III.

Expectations

This term will be used to refer to the type of leadership behavior that superiors and subordinates anticipate from a person in the position of the supervisor. From the viewpoint of the perceiver, expectations represent the perceiver's estimate of the required behavior of a supervisor in a particular leadership role. Required behavior can be thought of as the expectations of the various personnel components for conformity on the part of the supervisor concerning what should or should not be done.

The first step in responding to another person is to form an impression of him. But the responses of people to others in their environment are not always automatic or mechanistic. A stimulus sets the occasion for behavior, but there is not necessarily a perfect correlation between stimulus and response. The response is partly the result of intervening variables relating to personal characteristics of the perceiver. Krech, Crutchfield, and Ballachey have suggested three cognitive systems in the

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[5]Fleishman, loc. cit.

[6]Likert, loc. cit.

perceiver which influence his perceptions and judgments of others: the halo effect, implicit personality theory, and stereotypes.[7] The concept of stereotypes can be usefully employed to enlarge upon the meaning and intended usage of the term "expectations." To illustrate: Within the public mind, military supervisors have acquired the reputation of being authoritarian in their leadership behavior. The subordinates of a military superior thus expect him to act in an authoritarian manner as he directs his work group. Why? Because the perceptions or judgments which the subordinates have of the military supervisor were influenced by what they "knew" to be true of military supervisors, in general. That is, they ascribed to the military supervisor characteristics which they believed to pertain generally to military supervisors. Authoritarian leadership behavior is expected.

Leadership Behavior

Current literature refers to a variety of meanings when the terms "leader" and "leadership" are used. As generally used, however, the term "leader" describes any individual whose behavior stimulates, influences, or patterns the behavior of his group. No distinction is usually made between the formal and the informal group. Within the context of this study, the term "leader" will be used to refer to the person who has been appointed or assigned to a position which has supervisory responsibilities. Within military organizations, leaders are always appointed.

Leadership, in its usual sense of "natural" leadership, is not considered synonomous with supervision. Supervision has been described

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[7]David Krech, R. S. Crutchfield, and E. L. Ballachey, Individual in Society (New York: McGraw-Hill Book Company, Inc., 1962), pp. 52-53.

by Andrews as ". . . basically a leadership role, in a formal organization, which has as its objective the effective influencing of other employees."[8] The distinguishing characteristics between leadership and supervision in this definition, it seems, is the difference in the organizational setting and the source of the supervisor's authority. Even though a distinction between leadership and supervision can be made on these grounds, providing leadership is a function of every supervisory position. The supervisor's fundamental responsibility, regardless of the type of organization or the source of his authority, is to get work done or achieve goals through the utilization of the efforts of other persons. Except in rare instances these other persons are subordinates.

"Leadership behavior" will be used generally to refer to those actions of the appointed leader as he attempts to develop and motivate individual workers and groups, give technical direction to the work, make assignments, set targets, and measure accomplishments. Leadership behavior will be used to refer to both the <u>what</u> and the <u>how</u> of the actions of the appointed supervisor.

<u>Noncommissioned Officer</u>

A noncommissioned officer (NCO), within the Air Force, is an airman in the enlisted grade of Staff Sergeant, Technical Sergeant, Master Sergeant, Senior Master, or Chief Master Sergeant.

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[8] Richard E. Andrews, <u>Leadership and Supervision</u> (Washington, D. C.: U. S. Civil Service Commission, Personnel Management Series No. 9, 1955), p. 5.

Perception

As generally used, perception is "the process of discrimination among stimulii and of interpreting their meaning."[9] It is an intervening process, between the sensory process, on the one hand, and behavior, on the other. Being an intervening process, it is not directly observable. It can be investigated and understood only by observing behavioral responses made to stimulii under various conditions or environments. Blake, Ramsey, and Moran have expanded the general definition of perception to suggest that the manner in which each individual perceives or apprehends his world provides the clue to his patterns of behavior. Instead of being a matter of simple responses to stimulus situations, behavior is "governed by learned interpretations or implications assigned on the basis of experience to configurations of stimulus energies."[10]

The viewpoint of Blake, Ramsey, and Moran is consistent with Cantril's description of perception as not a "reaction to" stimulii in the environment, but a "transaction with" an environment. He draws the following implication:

> . . . the meanings and significances we assign to things, to symbols, to people, and to events are the meanings and significances we have built up through our past experience, and are not inherent or intrinsic in the 'stimulus' itself.[11]

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[9]Clifford T. Morgan, Introduction to Psychology, 2nd ed. (New York: McGraw-Hill Book Company, Inc., 1961), p. 299.

[10]R. R. Blake, G. V. Ramsey, and L. J. Moran, "Perceptual Processes as Basic to an Understanding of Complex Behavior," in R. R. Blake and G. V. Ramsey (eds.), Perception: An Approach to Personality (New York: Ronald Press Company, 1951), p. 8.

[11]H. Cantril, "Perception and Interpersonal Relations," American Journal of Psychiatry, 114:119-126, July 1957, p. 119.

Both these descriptions stress what Bruner has called the "behavioral" determinants of the perceptual process.[12] After a review of a series of researches, Bruner referred to a "New Look" in perception, one which showed the importance of such subjective influences as needs, values, cultural background, and interests on the perceptual process.

When the term "perception" is used in relation tc the manner in which superiors and subordinates perceive the leadership role of the supervisor, it is used in the sense of being part of a larger adaptive act, a social perception.

Role

Three rather distinct connotations of role have been identified by Levinson.[13] These connotations stem from the particular behavioral science persuasion of the person discussing role: psychology, sociology, or social psychology. In this study the more eclectic connotation of the social psychologist will be employed. This view of role is, according to Levinson, as follows:

> . . . concept of role concerns the thoughts and actions of individuals, and, at the same time, it points up the influence upon the individual of socially patterned demands and standardizing forces.[14]

This view of role best points out the reciprocal and normative nature of role. To illustrate: A small military work group has

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[12]Jerome S. Bruner, "Social Psychology and Perception," in E. Maccoby, T. Newcomb, and E. Hartley (eds.), Readings in Social Psychology, 3rd ed. (New York: Holt, Rinehart and Winston, Inc., 1958), p. 88.

[13]Daniel J. Levinson, "Role, Personality, and Social Structure in the Organizational Setting," Journal of Abnormal and Social Psychology, 58:170-180, March 1959, p. 172.

[14]Ibid.

expectations of the type of behavior it anticipates from the supervisor of their group. The expectations are values or norms commonly held by members of the work group.

It will be noted that the concept of role appears both with respect to role expectations (norms) and role behavior (acts). There can be two kinds of role requirements--formal prescriptions and informal expectations. Both of these describe the way a person is supposed to behave according to the norms of the group. Thus, role is seen as a set of complementary expectations involving the supervisor in his interactions with his superiors and his subordinates.

This concept of role has two inter-dependent components which are often distinguished in the literature.[15] First, there is the component of <u>social</u> role: A set of expectations which superiors and subordinates have of the supervisory position. These expectations develop without regard to the characteristics of the person actually fulfilling the position. In the present study, one of the primary objectives is to determine whether superiors and subordinates perceive the role of the military supervisor to be different from that of the civilian supervisor. This concern points to the importance of the second component, which can be described as <u>personal</u> role. Personal role refers to a set of expectations which superiors and subordinates have of a particular person (military or civilian) in the supervisory position. Presumably, the expectations of the personal role act to modify the expectations of the

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[15]Definition of these two components of role generally follows the formulation of Eugene Jacobson, W. W. Charters, Jr., and S. Lieberman, "The Use of the Role Concept in the Study of Complex Organizations," <u>Journal of Social Issues</u>, 7:18-27, No. 3, 1951, p. 29.

social role. In any specific measurement of expectations, it is further presumed that the data will reflect both social and personal expectations, although the relative importance of each component is unknown. In the context of this study, the expectations which superiors and subordinates have of the social role of the supervisor are measured by the arithmetic average of the expectations which they have of the personal role of the military supervisor and the personal role of the civilian supervisor.

Subordinate

As a noun, this term refers to a person who is subordinate to another. The Air Force Dictionary clarifies this general meaning by emphasizing that "a person is not subordinate to another by virtue of being of lower rank. He is subordinate by virtue of being under another's control."[16] As a member of one of the personnel components investigated in this study, the subordinate is an operative worker--a worker having no supervisory responsibility. The immediate supervisor of the subordinate is a first-line supervisor.

Superior

As a noun, this term is defined as "a person higher than another or others in a chain of command."[17] Within the context of this study, it refers to the second-line supervisor. Superiors are supervisors of first-line supervisors.

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[16]Woodford A. Heflin (ed.), The United States Air Force Dictionary (Washington, D. C.: Government Printing Office, 1956), p. 497.

[17]Ibid., p. 498.

Supervisor

A supervisor, obviously, is anyone who supervises the work of someone else. However, there may be some difference between a first-line supervisor and, for example, an "immediate" supervisor. All first-line supervisors are immediate supervisors, but not all immediate supervisors are first-line supervisors. To the commanding officer's secretary, the commander is an immediate supervisor, but he is not a first-line supervisor.

In the present study, the term supervisor will be used to refer to the person who is appointed to a position which has assigned to it the supervisory control of the group of which it is a part. Further, when the term is used it will apply only to the first-line supervisor.

The general term for a member in this first-line position of management is "supervisor." If he functions in a factory or shop, he is usually called "foreman." If he functions in an office, he is called "supervisor." In this study the term "supervisor" will be universally used except in instances where it is necessary to preserve clarity of research findings.

Personnel Components

From an organizational point of view the supervisor must interact with three categories of persons: his supervisors, his peers, and his subordinates. Of these three personnel components he interacts most frequently with his superiors and his subordinates. The various superiors and subordinates surrounding a particular supervisory position represent these personnel components from which the requirements and role of the supervisor are secured.

This study is concerned with three personnel components: first-line supervisors, their superiors, and their subordinates. Each component

is composed of military and civilian sub-components. These terms will be used frequently within this study.

II. BACKGROUND TO THE PROBLEM

The psychological position of the first-line supervisor in business organizations has long been an important topic in management and leadership literature. The problem of just where and how the supervisor fits into the organizational setup and how he relates himself to those in other positions in the organization has been the subject of numerous writings and empirical researches. There is a general consensus that the position of the supervisor is often surrounded with ambiguity, uncertainty, and conflict. This problem has led Roethlisberger to characterize the foreman (supervisor) as "master and victim of double talk."[18] In further discussion of the role of the first-line supervisor, Roethlisberger concludes that "nowhere in the industrial structure more than at the foreman level is there so great a discrepancy between what a position ought to be and what a position is."[19] Mann and Dent have described the supervisor as a "member of two organizational families."[20] Gardner and Whyte have referred to the foreman as "the man in the middle."[21] Another

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[18]Fritz J. Roethlisberger, "The Foreman: Master and Victim of Double Talk," Harvard Business Review, 23:283-298, Spring 1945, p. 283.

[19]Ibid., p. 294.

[20]Floyd C. Mann and J. K. Dent, "The Supervisor: Member of Two Organizational Families," Harvard Business Review, 32:103-112, November-December 1954, p. 103.

[21]B. B. Gardner and W. F. Whyte, "The Man in the Middle: Positions and Problems of the Foreman," Applied Anthropology, 4:1-28, Spring 1945, p. 1.

investigation, however, has postulated that the foreman is not clearly the "man in the middle" but is actually marginal to both those above and those below him.[22]

All these investigations point to the conclusion that the supervisor's superiors do not consider him a part of management nor do the workers consider him a part of their group. The first-line supervisor occupies an ambiguous position since it is particularly subject to conflict in behavioral expectations. He is subject to two sets of requirements or expectations which are usually in conflict. Supervisors are motivated to affiliate with both their superiors and their subordinates; but they are not fully accepted by either group.

While it is true that every position in the formal organization, excepting those at the very bottom and the very top, is "in the middle," the fact that the supervisor is subject to the demands of both higher management and the workers lend the unique characteristics to his position. His legal position in the organization, the problems he faces in interacting upward and downward, the supervisory and technical dimensions of his position, and the varied nature of the expectations that others hold toward him all contribute to making his position, psychologically perhaps, the most difficult in the entire organization. The problems encountered in providing effective leadership at the first level of supervision remain a paramount concern of management personnel and the focus of much research.

Less widely studied and documented are the problems which face the first-line supervisor in military organizations. The problem of providing

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[22]D. E. Wray, "Marginal Men of Industry: The Foremen," American Journal of Sociology, 54:298-301, January 1959, p. 301.

effective leadership at the first level of supervision in military organizations has most of the characteristics of the problem in industry. While there are distinctions which can be made between the working environment of the supervisor in military organizations and his counterpart in industry, the similarities which exist are far greater and more significant. Peculiar to the military situation are those distinctive characteristics which have always been associated with administrative and personnel processes in military organizations.

Just as in industry, the supervisor in the military organization cannot be unmindful of persons both above and below him. The supervisor must at all times be aware of and responsive to the formal requirements and expectations of higher management as interpreted and passed down by his immediate superior. At the same time he must be aware of the needs and expectations of his subordinates. Psychologists have long realized that the expectations of superiors and subordinates constitute important environmental variables in the explanation of the leadership behavior of the supervisor. Both components expect a certain predictability on his part, not because they know him as an individual but because he occupies a specific position in the organizational hierarchy.

The work force of many non-combat, support-type military organizations is composed of both military and civilian personnel who work side by side in both supervisory and operative positions. The traditional stereotype of the supervisory relationship in military organizations is one of the military supervisor and the military work group, with both elements readily expecting and accepting the hierarchial exercise of formal authority. Difficulties are encountered in perceiving a supervisory relationship in a military organization in which the supervisor can be

either military or civilian and his subordinates, the rank-and-file workers, can be either military or civilian, or both. Yet, this supervisory relationship is commonplace in many military organizations. The fact that civilian personnel are also employed at the second level of supervision makes it possible for a military first-line supervisor to work for a civilian superior. Likewise, the civilian supervisor can work for a military superior.

The various superiors and subordinates with whom the supervisor must interact represent the personnel components from which most of the leadership role expectations of the supervisory position are derived. The fact that all three components, supervisors, superiors, and subordinates can be of a military/civilian mixture adds certain psychological and social dimensions to the supervisory relationship in military organizations which are not found in industrial organizations.

III. STATEMENT OF THE PROBLEM

Previous discussion has pointed to the necessity of broadening the concept of work environment in certain military organizations to recognize these differences which may exist between the military and civilian personnel which make up that work environment. The problem under study may best be brought into focus by asking a number of questions. Do the perceptions which military superiors have of the leadership role of the supervisor differ from those of civilian superiors? Do military subordinates perceive the leadership role of the supervisor differently than do civilian subordinates? Do superiors differ from subordinates in their perceptions of the leadership role of the supervisor? Do the perceptions which superiors and subordinates have of a military supervisor differ from their perceptions of a civilian supervisor?

Since the supervisor's leadership attitudes and self-perceptions are strongly influenced by the expectations of both his superiors and subordinates, it is considered worthwhile that the perceptions which military and civilian superiors and military and civilian subordinates have of the leadership role of the supervisor be investigated. The present study is concerned with this general problem. The specific problems to be researched are: (1) Is the leadership role of the military supervisor perceived by his superiors and subordinates to be different from the leadership role of the civilian supervisor? (2) Are there patterns of differences or similiarities in the perceptions which superiors and subordinates have of the leadership role of military and civilian supervisors? (3) Do the leadership attitudes of military and civilian supervisors tend to more nearly conform with the expectations of their superiors or with the expectations of their subordinates?

IV. JUSTIFICATION AND IMPORTANCE OF THE PROBLEM

Effective leadership is a necessary element at all levels of organized activity. This is especially true in large military organizations. Although there are specific leadership problems attending each of the various levels of organization, there is a general consensus that the most critical leadership position is that of the first-line supervisor. Officials at higher levels can contribute to organizational good health and effectiveness by prescribing sound policies and promoting over-all objectives, but there is no substitute for a harmonious relationship between the individual worker and his immediate supervisor. The position of the first-line supervisor is considered critical not because of the

lack of leadership ability on the part of the supervisor, rather because the demands made upon him are so much greater and varied.

An often heard complaint of the supervisor is: "If I only knew what was expected of me." This study does not allude to providing an answer to his problem. There are, however, both practical and theoretical needs which justify this choice of problem as the focus of research in this study.

A practical need for this study arises out of the author's personal experiences as an administrator in military organizations. As a participant and as an observer, there have come insights which would seem to indicate that the problems which supervisors have in learning what they are to do and how they are to do it are directly related to the quality and efficiency of organizations. These observations have raised questions about the differences in expectations which different personnel components have of the leadership role of the supervisor. Information relative to the leadership role expectations which superiors and subordinates have of the supervisory position would enable actual supervisors to formulate and modify their patterns of leadership behavior. Such information could also form a sound basis for securing a more adequate definition of the supervisory leadership role from the various personnel components with which the supervisor must interact.

This study also offers the practical benefit of evaluating certain practices and suppositions which administrators have always held about the interrelationships of military and civilian personnel in military organizations. Empirical findings relative to the broad research questions under investigation would provide military managers and planners

with a better understanding of the perceptual aspects of the leadership behavior of first-line supervisors. Such findings would also have practical implications for Air Force personnel assignment practices and for supervisory and leadership training. They would also provide an operational approach to analyses of organizational morale and efficiency.

Theoretically, there is a need to move toward a more meaningful set of concepts and generalizations which will provide a basis for continuing studies of the problems of supervisory leadership in military organizations. The present study provides a vehicle for testing relevant theory and concepts within the context of a military setting.

Perhaps the ultimate justification for any study of human behavior, and one implicit in the above discussion, is that it may assist in the prediction of individual behavior. Analysis of role expectations and role relationships would also furnish data for prediction of the attitudes, perceptions, and behavior of members of military organizations. Certainly, a greater awareness of the perceptions which an individual's group has of the supervisory leadership role will aid in predicting the responses of that individual to specific leadership acts.

V. HYPOTHESES

In the previous sections the broad research objective of this study was defined. Since the position of the supervisor in military organizations is explicitly defined in terms of superiority or subordination in the formal lines of authority, the supervisor must interact with two categories of persons: his superiors and his subordinates. Recognizing that both superiors and subordinates often reflect conflicting expectations of the supervisor, three specific research questions were delineated.

Viewed as a whole, these three questions constitute a component-type approach to the investigation of the broader research objective.

Eight specific hypotheses are offered with respect to these three research questions. These hypotheses are formulated in terms of consideration and structure, the two dimensions of leadership behavior being measured. It is understood that the hypotheses posited here as a test of these research questions do not exhaust the list of possible hypotheses concerning the relationships of these variables. These hypotheses do appear to be the more important ones in understanding the primary data and their analyses. The first two hypotheses, which relate to the first research question, postulate differential perceptions of the leadership role of the supervisor by the personnel components which comprise the work environment of the supervisor. The next four hypotheses, which relate to the second research question, are derived from role theory which postulates that, through the process of stereotyping, those characteristics are ascribed to an individual which are believed to characterize his group.[23] The final two hypotheses relate to the third research question and are derived from need theory and the notion of reward for conformity.

In these hypotheses the leadership role of the supervisor will be referred to in terms of both social role and personal role.[24] When reference is made to the status of the person in the supervisory position (military or civilian), leadership role is used in the sense of personal role. In all other instances it is used in the sense of social role.

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[23]Krech, Crutchfield, and Ballachey, op. cit., p. 53.

[24]See pages 9 and 10 for a discussion of these two components of role.

Hypothesis I

The leadership role of the military supervisor will be perceived by both superiors and subordinates to be lower in consideration and higher in structure than the leadership role of the civilian supervisor.

Rationale. Underlying this hypothesis is the prediction of social scientists, in general, that military experience produces authoritarian attitudes. The type of leadership behavior expected of a military supervisor, in comparison to that expected of a civilian supervisor, is a result of identification of the military supervisor with an acceptance of military ideology and the hierarchical exercise of formal authority.

Hypothesis II

Superiors and subordinates will reflect greater agreement in their perceptions of the leadership role of the military supervisor than in their perceptions of the leadership role of the civilian supervisor.

Rationale. The outcome postulated in this hypothesis is expected as a result of the stereotype of the military supervisor. The place of the military supervisor in military organizations is well established. He can usually learn leadership role expectations by reference, directly or through others, to official prescriptions set forth and to unwritten customs of some standing. In formal groups role relationships tend to be more rigidly defined than in informal groups. This is especially true in military organizations, making possible a greater degree of substitutability of supervisors than would be possible in nonmilitary organizations. Krech, Crutchfield, and Ballachey have observed that: "A military unit

may retain the same general structure and even seem completely unchanged to its members when one of its officers is replaced."[25]

The military supervisor is supported in his leadership role by military and social customs which are easily communicated to him and to those with whom he must interact. This circumstance does not apply to the civilian supervisor, at least not with the same degree of definitiveness. Viewing the civilian supervisor in a military organization is done with much less certainty than in the case of the military supervisor.

Hypothesis III

Military superiors will perceive the leadership role of the supervisor to be lower in consideration and higher in structure than will civilian superiors.

Rationale. This hypothesis is a natural derivative of the previous one. It stems from the notion that military experience and acceptance of military ideology by the military superior leads to authoritarian attitudes, which in turn lead to authoritarian practices. The importance of attitudes and other subjective influences such as needs, values, cultural background, and interest on the perceptual process have been stressed by Bruner.[26] The importance of set as a subjective factor in the perceptual process has been illustrated by Kelly[27] and Strickland.[28] These findings

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[25] Krech, Crutchfield, and Ballachey, op. cit., p. 451.

[26] J. S. Bruner, loc. cit.

[27] H. H. Kelley, "The Warm-Cold Variable in First Impressions of Persons," Journal of Personality, 18:431-439, June 1950.

[28] L. H. Strickland, "Surveillance and Trust," Journal of Personality, 26:200-215, June 1958.

point to the conclusion that the perceptions of the leadership role of the supervisor are fashioned in terms of the needs, values, social and cultural backgrounds, and the expectations of the perceiver.

Hypothesis IV

Military superiors will perceive the leadership role of the supervisor to be higher in consideration and higher in structure than will military subordinates.

Rationale. While the previous hypothesis compares the perceptions of the military superior with those of the civilian superior, the present hypothesis compares the perceptions of the military superior with those of the military subordinate. Previous discussion has presented evidence that the military superior is expected to be more authoritarian than the civilian superior. Implicit in this hypothesis is the question: Do the leadership attitudes of a military person continue to become more authoritarian with increased military experience? Recent research offers contradictory evidence on this question, but some of the more significant of these researches suggest that longer military experience does not necessarily lead to increased authoritarianism and production-oriented leadership behavior. Although reluctant to state it as a conclusion, Campbell and McCormack found that "if experience in the Air Force has any effect upon general attitudes toward authority, it is to make them less authoritarian."[29] In a more recent study, performed in an industrial environment, Stanton found that a highly structured or authoritarian approach to the

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[29] Donald T. Campbell and T. H. McCormack, "Military Experience and Attitudes Toward Authority," American Journal of Sociology, 62:482-490, March 1957, p. 488.

problem of providing supervisory leadership need not be accompanied by a lack of consideration for the rights and feelings of individual workers.[30] It is recognized that these findings are contradictory to previous findings and expectations. The present hypothesis is related to and is a test of those findings.

This rationale emphasizes experience in or working for a military organization rather than military rank or civilian grade. Experience, in the case of military persons, is measured by the total active duty time; for civilian persons, it is measured by the total time working for the Air Force. Experience is considered a more relevant variable for a number of reasons. Primary, however, is the fact that there is not necessarily a direct relationship between rank or grade and total experience. For example, a second lieutenant with one year of active duty has not had the total exposure (experience) to the military services as a staff sergeant with ten years of active duty. This is true even though the second lieutenant is, in the organizational hierarchy, superior to the staff sergeant. Within the officer group or the enlisted group, however, this observation would not apply. Within groups there is usually a more direct relationship between rank and experience. Even here, however, there are exceptions.

Hypothesis V

Civilian superiors will perceive the leadership role of the supervisor to be higher in consideration and higher in structure than will civilian subordinates.

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[30]Erwin S. Stanton, "Company Policies and Supervisor's Attitudes Toward Supervision," Journal of Applied Psychology, 44:22-26, February 1960, p. 26.

Rationale. The rationale of the previous hypothesis suggests this hypothesis as a test of whether continued experience working in a military environment tends to make the civilian superior more authoritarian and superior-oriented, resulting in authoritarian leadership behavior.

Hypothesis VI

Military subordinates will perceive the leadership role of the supervisor to be lower in consideration and higher in structure than will civilian subordinates.

Rationale. Theory underlying Hypotheses III and IV suggests the present hypothesis as a test of the constancy of the stereotyping of the military person to be more authoritarian than the nonmilitary person.

Hypothesis VII

The leadership attitudes of both military and civilian supervisors will more nearly conform with the expectations of superiors than with the expectations of subordinates.

Rationale. The outcome postulated in this hypothesis is anticipated for a number of practical considerations. First, it is likely that over a period of time, supervisors will become indoctrinated by their superiors with respect to the kind of leadership behavior they are to exhibit in directing their work groups. Secondly, it is common practice for a candidate for a supervisory position to work for a while as an acting supervisor. The candidate for the supervisory position realizes that final acceptance and appointment is contingent to a significant degree upon his ability to display the kind of leadership behavior

expected by the superior. Finally, the superior recommends a particular candidate for the supervisory position because he believes the candidate will continue to act in an acceptable manner.

Hypothesis VIII

The leadership attitudes of military supervisors will reflect greater conformity with the expectations of superiors than will the leadership attitudes of civilian supervisors.

Rationale. Theory underlying the rationale for Hypothesis VII applies equally well to both military and civilian supervisors. However, there are other considerations which apply. Such personnel matters as promotions, skill and job classifications, and pay for the military supervisor are governed by different regulations and procedures than similar personnel actions for the civilian supervisor. The predicted outcome of the present hypothesis is anticipated because of the impact of these different regulations and procedures upon the respective supervisors. It is a widely held opinion that the military supervisor is more closely dependent upon his superior for satisfaction of his personal needs than is the civilian supervisor. Another factor which allegedly applies more to the military supervisor is his acceptance of military ideology and the hierarchial exercise of formal authority. This additional factor is considered to be supplementary.

VI. SUMMARY

This chapter has introduced the problem under investigation. The purpose of the study was to investigate the variation in the perceptions which superiors and subordinates have of the leadership behavior of military and civilian supervisors in military organizations. Three

specific research questions were formulated. Eight specific hypotheses were formulated as tests of the proposition that there are differentiated perceptions of the leadership role of military and civilian supervisors both between and within the personnel components with which the supervisor must interact.

The need for this study has been justified by the practical insights which may be gained for administrators in military organizations and the theoretical interpretations of the findings which may encourage further research.

CHAPTER II

REVIEW OF THE LITERATURE

The literature on the subject of supervisory leadership in military organizations is extensive. There are writings on the subject in almost all areas or disciplines concerned with individual or group behavior. However, a thorough review of the literature in the areas of psychology, social psychology, and sociology revealed no study directly concerned with the variations in the perceptions which superiors and subordinates have of the leadership role of military and civilian supervisors in military organizations. In order to establish a theoretical frame of reference for the present study, it was necessary, in some instances, to survey a range of literature which had only peripheral implications.

This review of the literature will be divided into three sections. Each section is oriented to a particular aspect of the present investigation. The intent of this review is to present, in summary form, the divergent thinking and research emphases in the three areas. This section will also identify and trace certain social and technological trends which have been conducive to changes in leadership philosophy within the armed services.

I. AUTHORITARIANISM AND MILITARY IDEOLOGY

Authoritarianism in Military Organizations

Much of the research on leadership in military organizations has been premised on the assumption that the dominant characteristics of military organizations are their authoritarian procedures. A further

aspect of this assumption is that military experience and participation in the training programs of these organizations would necessarily lead to heightened authoritarian tendencies on the part of military personnel. Since supervisory leadership in military organizations always takes place within the context of superior-subordinate relationships, authoritarian personality tendencies on the part of the supervisor would imply that he is both predisposed to use arbitrary methods in dealing with his subordinates and, at the same time, to willingly submit to the use of such methods by superiors. The assumptions made by Brotz and Wilson in a study conducted in 1946 are representative of the assumptions underlying most of the research during and immediately following World War II.[1] In their study they discussed the problems of men upon entering the armed services for the first time in terms of the Army as (1) a hierarchy of command, (2) a rigidly stratified society, and (3) as either socializing or isolating its members.[2]

The results of most of these early studies could have been expected in light of the theoretical considerations regarding authoritarianism. More recently, however, a number of studies have been reported with

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[1]Howard Brotz and Everette Wilson, "Characteristics of Military Society," The American Journal of Sociology, 51:371-375, March 1946. Also see William O. Jenkins, "A Review of Leadership Studies with Particular Reference to Military Problems," Psychological Bulletin, 44:54-79, January 1947; Samuel A. Stouffer, et al., The American Soldier: Adjustment During Army Life, Vol. I (Princeton, N. J.: Princeton University Press, 1959); R. M. Stogdill, "Personal Factors Associated with Leadership: A Survey of the Literature," Journal of Psychology, 25:35-71, January 1948; and The American Journal of Sociology, Vol. 51, March 1946, a special issue devoted to human behavior in the military services.

[2]Brotz and Wilson, ibid., p. 371.

results contrary to expectations. Since these unexpected findings have directly contributed to the formulation of the present study, a number of them will be reviewed.

French and Ernest have reported a study in which they tested four hypotheses which related authoritarianism, as measured by the California F-Scale, to acceptance of military ideology, as measured by The Military Ideology Scale.[3] Their two major hypotheses were:

> (1) The California F-Scale can identify individuals who will find military ideology acceptable to them at the time they come into service or who will learn to accept it after a period of indoctrination. (2) The F-Scale can identify those men who will be more likely to express an intention of making a career of the service.[4]

Their data tended to confirm their first hypothesis. Correlations arrived at in testing the second hypothesis were in the predicted direction but were too low to be considered as confirmation of the hypothesis. A number of possible explanations can be offered for the failure of the second hypothesis. Most important, perhaps, is the possibility that what the F-Scale and the Military Ideology Scale have in common is not related to a person's predisposition to make a career of the armed services. The reasons individuals give for making a career of the armed services do not usually include the fact that military organizations are authoritarian. Nor do individuals who leave the military services after their initial period of service usually claim the authoritarian nature of military organizations to be their reason for leaving, even though such reasons

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[3]Elizabeth G. French and R. R. Ernest, "The Relations Between Authoritarianism and Acceptance of Military Ideology," Journal of Personality, 24:181-191, December 1955.

[4]Ibid., p. 182.

as job dissatisfaction do rank high.[5] These individuals who scored high on the F-Scale and accepted military ideology during their initial stay in the service would most likely fit easily into a nonmilitary authoritarian environment, if available. The importance of situational factors as well as other personality factors must also be considered. Difficulty in drawing definite conclusions in studies of this type will continue to be experienced until the relationship between authoritarianism and military adjustment is better understood.

Another study, reported by Campbell and McCormack, had as its major hypothesis the proposition that air cadet training would increase authoritarian predispositions among the air cadets.[6] Surprisingly, their findings not only failed to confirm the hypothesis but produced a highly significant opposite effect. Longer experience in the Air Force did not lead to increased authoritarianism on the part of the air cadets. In view of the discrepancy between their findings and what they considered to be the prediction of social scientists in general, the researchers were tempted to conclude that their findings were due to the inadequacy of their research instruments. Instead, they introduced some rival hypotheses such as recruitment differences, shifts in conditions of testing, and increased sophistication on the part of the air cadets.[7]

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[5]Personal correspondence from Detachment Commander, Armed Forces Examining and Induction Station, Seattle, Washington, October 1964.

[6]Donald T. Campbell and T. H. McCormack, "Military Experience and Attitudes Toward Authority," The American Journal of Sociology, 62:482-490, March 1957.

[7]Ibid., p. 488.

Further unexpected results were obtained by Hollander in a study of naval air cadets.[8] His study was undertaken to determine the relationship between F-Scale scores and leadership among the naval air cadets. He hypothesized that (1) there would be a significant positive relationship between F-Scale scores and incidence of choice by one's peers for a military leadership position, and (2) there would be a significant difference, with respect to F-Scale scores, between the leadership nominees of those "high" on authoritarianism and those "low" on authoritarianism.[9] A total of 268 naval air cadets were tested. Correlational analysis revealed a negative relationship between authoritarianism and peer nominations ($r = -.23$; $p \leq .01$). Contrary expectations were also found in a test of the second hypothesis. No significant differences were found between those cadets nominated as leaders by others who were respectively "high" and "low" on authoritarianism. In a supplementary analysis, intelligence, as measured by the ACE Test, was found to be related significantly to both authoritarianism ($r = -.21$) and peer nominations for leadership ($r = +.30$). The findings of the first hypothesis remained significant, however, even when intelligence was held constant.

The researcher offered a number of suggestions as tentative explanations for the contrary findings. One interpretation was that there may be real differences between acceptance of military ideology and authoritarian behavior as it is traditionally conceived. His conclusion was:

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[8] E. P. Hollander, "Authoritarianism and Leadership Choice in A Military Setting," Journal of Abnormal and Social Psychology, 49:355-370, July 1954.

[9] Ibid., p. 365.

". . . that a high score on the F-Scale might be indicative of a lack of social intelligence or social perception."[10] Consistent with this conclusion was his suggestion that ". . . individuals who are 'authoritarians' in the F-Scale sense are unable to deal effectively with the needs of others and therefore tend to be rejected as leaders by potential followers."[11]

Most of these researchers have emphasized the importance of situational determinants of leadership behavior in suggesting explanations for their unexpected findings. One implication found in all these studies is the fact that although the leadership role may be perceived as being authoritarian, persons who attempt to fulfill the role in these terms tend to be rejected by those with whom the leader must interact. A more weighty consideration is the possibility that the tendency of these researchers to perceive the role of the military leader as being authoritarian was due to an inadequate understanding of the processes of change which took place within the armed services immediately following World War II. During World War II, the traditional assumption was that the military services were more authoritarian than other segments of society. The contrary findings of these researches, which took place in the middle fifties, suggest a re-examination of the validity of the assumptions on which the researches were based.

The Changing Nature of Military Organizations

During World War II, the Research Branch of the Information and Education Division of the War Department conducted a series of studies

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[10] Ibid., p. 370.

[11] Ibid.

in an effort to identify those factors which affected morale of servicemen. In 1949, the former members of this research activity collected their findings and collaborated in the publication of the four volume work, The American Soldier.[12] These findings contributed to new understandings of the World War II soldier. Of particular interest and importance was the data provided on the individual soldier's reactions and adjustment to military life and his attitudes toward leadership and social control.[13]

Since World War II there has been a steady growth of research into such problems as military leadership, communication, and job satisfaction. The Office of Naval Research stimulated research in human relations and leadership at Michigan and Ohio State Universities among others. The Air Force emphasized the development of in-service research by establishing the Human Resources Research Institute and the Human Resources Research Center. The results of these activities have been impressive. The application of some of these findings within military organizations has foreshadowed developments in nonmilitary segments of our society.

During World War II, the newcomer to the services was often bewildered as a result of his initial exposure to military service. As citizen soldiers, most of these newcomers had had no previous contact with military life in any form. Stouffer and his associates have reported that the new citizen soldier noted especially the following characteristics of military life: (1) the authoritarian organization, demanding obedience,

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[12]Samuel A. Stouffer, et al., The American Soldier, Vols. 1-4 (Princeton, N. J.: Princeton University Press, 1949).

[13]Ibid. (See Vol. I, The American Soldier: Adjustment During Army Life.)

(2) the highly stratified social system, in which hierarchies were established and maintained by regulations, and (3) the emphasis on traditional ways of doing things.[14]

Some of these institutional forms were adaptive to modern warfare, others probably were not. Frictions which resulted when the old institutional forms were adapted to the new peace-time situation led to the appointment of an investigating committee, which came to be known as the "Doolittle Committee."[15] The recommendations of this committee resulted in the modification of many of the time honored leadership practices and relationships between officers and enlisted personnel.

The forces of change were also attacking these institutional forms on another front. Breakthroughs in military technology and the introduction of complex, highly destructive weapons systems necessitated changes in organizations structures and operating procedures. Within the Air Force, which was separated from the Army and established as a separate service under provisions of the National Security Act of 1947, there have been far-reaching changes. One Air Force publication has recognized the following trends as having contributed to this process of change:

1. An increasing percentage of the national income was spent in areas related to defense efforts and repair of the consequences of World War II. The Military Establishment, since it was the agency spending

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[14] Ibid., (Vol. 1, p. 55).

[15] U. S. War Department, The Report of the Secretary of War's Board on Officer-Enlisted Man Relationships (Washington, D. C.: Infantry Journal Press, 1946).

most of these funds, became involved with a greater variety of civilian institutions and programs.

2. The revolution in military technology required the Air Force to develop and employ many of the skills normally found only in civilian occupations.*

3. With the introduction of weapons of mass destruction, the distinctions between military roles and civilian roles in warfare were lessened.

4. The introduction of compulsory military service contributed to the Air Force becoming a more heterogenous group. Military members, and especially the officers, were taken from a larger cross section of the social culture. This process of acculturation has made the Air Force more representative of the entire country and, therefore, more closely linked with nonmilitary segments of society.

5. The necessity of co-ordinating military policy with political, social, and economic policies has led to the Military Establishment being more completely integrated into civilian society.[16]

The over-all effect of this trend has resulted in certain highly significant changes in the structure of military organizations and in the prevailing attitudes toward authority and discipline. This effect

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*In the Civil War 93.2 per cent of the enlisted personnel in the Army had occupational specialities for which there were no civilian equivalents; by 1954 the rate had dropped to only 28.8 per cent. See Morris Janowitz, "The Military Establishment: Organization and Disorganization," in Robert K. Merton and R. A. Nisbet (eds.), Contemporary Social Problems (New York: Harcourt, Brace, and World, Inc., 1961), p. 522.

[16] The Air Force As A Profession (Maxwell Air Force Base, Alabama: Air Force ROTC, Air University, 1963), pp. 127-128.

must not be understood, however, to imply that the Air Force is no longer an authoritarian type organization. The emergency nature of the mission of military organizations depends upon an authoritarian structure. But today there is a difference in the role of authority and discipline. Although it has always been tempered by the necessities of human nature, military discipline has traditionally been based upon authoritarian domination. Today, military discipline is more of a positive concept based upon team organization and group consensus.

Social situations in the Air Force today vary from pure civilian routines at one extreme to armed combat routines at the other. Enfolding these differences is an atmosphere which affects every member of the Air Force. The most prevalent aspect of this atmosphere is the changed philosophy of military leadership. Leadership is no longer a matter of military custom. The emphasis today is on loyalty.[17] Loyalty presupposes obedience, but it indicates a wider latitude of initiative and freedom of action within the limitations of the situation.

Two important factors can be identified as contributing to this shift in emphasis and philosophy. First, there is the necessity for the military supervisor to consult and share authority with staff specialists on technological matters. Secondly, there is the increasing recognition that successful leadership today depends upon the supervisor developing the administrative and human relations skills and orientations common to civilian leaders and administrators.

It has been pointed out that there has been a change in the basis of authority and discipline in the military services. According to one

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[17]Brig. Gen. Cecil E. Combs, "Loyalty; The Military Touch-Stone," Air University Quarterly Review, 7:30-36, Spring 1955.

source, "this change manifests itself in a shift from repressive domination to a greater reliance on positive leadership, group consensus, and authoritative regulations."[18] This change has also manifested itself in the emphasis given to the study of psychology, human relations, and personnel management within the training and professional schools conducted by the Air Force. The curricula of the Air Force Academy[19] and the various schools and courses of the Air University[20] recognize the increasing importance of such studies for the Air Force officer. Significantly, these studies are also emphasized in schools attended by noncommissioned officers.[21] Civilian persons working in supervisory positions are eligible and do attend these various schools. Within the Air Force, the importance of such training for the first-line supervisor was stressed in a recent statement by the Deputy Chief of Staff, Personnel, United States Air Force:

> Job dissatisfaction ranks high among the reasons given by airmen for leaving the Air Force. The problem must be attacked at the workbench level. The first-line supervisor, whether he oversees one man or a dozen, is--in effect--a personnel manager. His impact on his subordinates can determine the pattern of their future actions. The importance of the relationship between supervisor and subordinate will be given greater emphasis in the immediate future at professional schools and NCO Academies.[22]

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[18] The Air Force As A Profession, op. cit., p. 70.

[19] United States Air Force Academy Catalog, 1964-1965, and Brig. Gen. Robert F. McDermott, "Educating Cadets for the Space Age," Air University Quarterly Review, 13:3-17, Spring 1961.

[20] "The Squadron Officer Course," Air University Quarterly Review, 6:96-113, Fall 1953; "The Command and Staff School," Air University Quarterly Review, 8:86-105, Fall 1956; and William H. Bowles, "Qualitative Educational Requirements for Professional Military Education," Air University Quarterly Review, 13:85-89, Summer 1961.

[21] Department of the Air Force, Management Course for Air Force Supervisors, Air Force Pamphlet 50-2-1, 1955.

[22] Department of the Air Force, "Pentagon Personal," The Airman, 8:35, August 1964, p. 35.

Perhaps the most astute observer of this process of change has been the sociologist, Morris Janowitz. In a recent analysis, he wrote "The contemporary military establishment has for some time tended more and more to display characteristics typical of any large-scale non-military bureaucracy."[23] He cites a number of trends which have contributed to this transformation. There is a parallel between the factors of change noted by Janowitz and those cited above. In spite of the pervasiveness of this process of change, Janowitz noted that:

> . . . the typical sociological analysis of military organization does not take into account the consequences of these trends and continues instead to emphasize its authoritarian, stratified-hierarchial, and traditional dimensions as a basis for distinguishing the military from the nonmilitary bureaucracy.[24]

This analysis by Janowitz presents a striking contrast to the assumptions made by Brotz and Wilson in their study.[25] Evidence that Air Force leadership philosophy has kept pace with this process of change is noted in the following statement:

> The skills required to achieve effective teamwork and to make such co-operative activity as satisfying as possible to the participants are fundamentally grounded in the understanding and interest which the manager has in the people of his organization. People just naturally are happier and work better when they feel that the 'boss' is interested in them and in looking out for their interests. They appreciate being treated as individuals, and it is an unwise manager who does not consciously treat them as such. Establishing and maintaining good human relations involves some circumspection on the part of the manager too. He should know himself as well as his subordinates do.[26]

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[23]Morris Janowitz, "Changing Patterns of Organizational Authority: The Military Establishment," Administrative Science Quarterly, 3:473-493, March 1959, p. 475.

[24]Ibid.

[25]Brotz and Wilson, loc. cit.

[26]Department of the Air Force, The Management Process, Air Force Manual 25-1, September 1954, p. 75.

II. THE ROLES OF LEADERSHIP

Empirical research has progressively led to a restatement of the problem of leadership from that of identifying personal traits of successful leaders to one of determining the causes, functions, and consequences of leadership behavior. In this new approach to the study of leadership the concept of role has played an important part.

Role Behavior and Role Expectations

One of the features of this new approach has been the gradual reformulation of the concept of role. Change can be noted by comparing Linton's[27] description of role as "the dynamic aspect of status" to that of Sargent[28] who sees role as a "pattern or type of social behavior which seems institutionally appropriate to the individual in terms of the demands and expectations of those in his group." Evidence of the continuing reformulation of the concept of role is seen in the efforts to resolve the semantic difficulties which abound in the literature. For example, a distinction between "role" and "role taking" or "role relationships" has been advanced by Coutu[29] and Southall.[30]

Closely related to the concept of role is the term "social status," which refers to or designates "the degree of prestige or

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[27]Ralph Linton, The Study of Man (New York: Appleton-Century-Crofts, Inc., 1936), p. 14.

[28]Stansfield Sargent, Social Psychology (New York: Ronald Press Company, 1950), p. 279.

[29]Walter Coutu, "Role-Playing vs. Role-Taking: An Appeal for Clarification," American Sociological Review, 16:180-187, April 1951.

[30]Aidan Southall, "An Operational Theory of Role," Human Relations, 12:17-34, 1959.

honor accorded to persons while they occupy a given social role or position."[31] An individual's status is high if the role he is playing is considered important by the group. High status is most likely to be assigned to those persons who possess an exceptional ability to perform some role regarded as important by the group. The supervisory role meets this criterion.

The position of the supervisor usually has a status distinct from the individual who occupies it. The status of a supervisory position is valued more highly than that of a subordinate position because of the functional role of leadership which is assigned to it and because of the other status symbols, rights, titles, and privileges which accrue to it. Krech, Crutchfield, and Ballachey have noted that in many organizations, symbols are created and used to denote the various status ranks in the organizational structure.[32] This is quite often true in military organizations, where the style of the uniform and the insignia of rank are clearly visible symbols of status. Titles such as "Officer-in-Charge" (OIC) and "Non-Commissioned Officer-in-Charge" (NCOIC) are often assigned to military supervisors. Such status symbols are not readily available to civilian persons working in military organizations.

The supervisory position, and its corresponding status, establishes a set of expectations. Since expectations imply behavior, the question can be asked: "Who establishes these expectations?" One answer is that

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[31]George A. Lundberg, C. C. Schrag, and O. N. Larsen, Sociology, 3rd ed. (New York: Harper & Row, Publishers, 1958), p. 158.

[32]David Krech, R. S. Crutchfield, and E. L. Ballachey, Individual in Society (New York: McGraw-Hill Book Company, Inc., 1962), p. 415.

everyone with whom the supervisor interacts evidences expectations of behavior from the supervisor: superiors, subordinates, and peers. Additionally, the supervisor has self-expectations about how he should perform his duties. Superiors and subordinates have behavioral expectations of the supervisor not because they know him as an individual, but because he occupies a certain position in the organization.

In military organizations, with their rigidly defined structures and role relationships, leadership role expectations take on aspects of social, personal, and situational determination. Sargent has shown that a given role is always affected by differing degrees of these influences.[33] While most positions in an organization are accompanied by job or position descriptions, these descriptions do not usually indicate the exact manner in which the prescribed duties will be performed. Thus informal expectations arise to complement the formal requirements of the organization.

Associated with every position in the organization is a set of socially and institutionally defined expectations concerning what is appropriate behavior for the person who occupies that position. Tolman has approached the problem of relating role to expectations by defining role in terms of the confirmation of expectations.[34] According to Tolman, the concept of role implies not only that other members in an interaction

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[33]Stansfield S. Sargent, "Conceptions of Role and Ego in Contemporary Psychology," in J. Rohrer and M. Sherif (eds.), Social Psychology at the Crossroads (New York: Harper and Brothers, 1951), p. 359.

[34]E. C. Tolman, "A Psychological Model," in Talcott Parsons and E. A. Shils, Toward A General Theory of Action (Cambridge: Harvard University Press, 1952).

situation expect an individual to behave in certain ways, but also that the individual expects that if he behaves as expected, his behavior will meet with approval or some form of response which confirms his expectations.

Expectations are defined in terms of both prescriptions and proscriptions. Bennett and Tumin, for example, have analyzed expectations in terms of required behavior, prohibited behavior, and allowed behavior.[35] In the supervisory situation, subordinates expect their supervisor to do certain things and to refrain from doing certain things. There are some things that he may or may not do. This latter type of behavior exists because there is not always a correspondence between the expectations of the various personnel components with which the person occupying the role must interact. Baumgartel has recognized the lack of clearly defined roles as a prime source of conflict and dissatisfaction in human relationships.[36]

Previous discussion has shown that, within the context of the organization, both subordinates and superiors expect the supervisor to act in certain ways. These expectations are in the form of both prescriptions and proscriptions. Both subordinates and superiors are psychologically prepared to react to the expected behavior. But what happens when the supervisor does not behave as expected? It can be quickly seen that in the absence of correspondence between the two sets of expectations, the supervisor cannot act in the manner expected by both parties.

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[35]John W. Bennett and W. M. Tumin, Social Life: Structure and Function (New York: Alfred A. Knopf, 1948), p. 96.

[36]Howard Baumgartel, "The Concept of Role," in Warren G. Bennis, K. D. Benne, and R. Chin (eds.), The Planning of Change (New York: Holt, Rinehart, and Winston, Inc., 1962), p. 374.

When the superior observes unexpected behavior, he has a number of behavioral alternatives available to him. These range all the way from disregarding the observed behavior to causing the supervisor to act in the manner expected. The subordinate does not have this choice. Subordinates are left surprised, confused, and ill-at-ease. It becomes necessary for them to resolve their confusion. In doing so, they often turn to a member of their own group for leadership. An exaggerated case of this sort of condition was reported by Scott in a study of naval enlisted personnel.[37] He asked enlisted persons to list their immediate superior, their immediate subordinates, and other men at their same level within their organization. He compared these listings with formal organizational charts and found over 40% of the listings in error. That this kind of condition can exist suggests that to merely establish status and to set forth expectations is not enough; they must be clearly communicated to the supervisor who will perceive and respond to them.

To the extent that there is a lack of correspondence between the expectations of superiors and those of subordinates, the supervisor will experience conflict in carrying out the duties of his position. One other factor which often complicates this conflict situation faced by the supervisor is that the expectations of his superiors and his subordinates might be different from his own perceptions of what he believes to be appropriate behavior in his position. It cannot be expected that there should be perfect agreement among these components as to what constitutes

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[37]Ellis L. Scott, Leadership and Perceptions of Organization (Columbus: The Ohio State University, Bureau of Business Research, Research Monograph Number 82, 1956), pp. 13-21.

appropriate leadership behavior on the part of the supervisor. But it can be easily recognized that for effective leadership these expectations should not be in direct conflict.

The question of role conflict has been researched extensively within the context of various work environments. Grusky studied role conflict among a group of prison camp officials.[38] Gross and his associates studied the problem of resolution of role conflict among a group of high school superintendents.[39] There is a spate of studies concerned with role conflict in industrial situations, especially at the level of the first-line supervisor.

The Roles or Functions of the Leader

A useful distinction can be made between viewing leadership as a personal quality and as an organizational function. Bavelas has noted that under this concept it is no longer useful to ask "who is a leader?"[40] Rather, he proposes we should ask "how are the leadership functions distributed in this organization?" The distribution may be wide or narrow. The actual distribution seemingly depends primarily upon the ability of the leader. One study has shown that, in the absence of an appointed leader, the various leadership functions tend to be carried out by

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[38]Oscar Grusky, "Role Conflict in Organization: A Study of Prison Camp Officials," Administrative Science Quarterly, 3:452-472, March 1959.

[39]Neal Gross, W. S. Mason, and A. McEachern, Explorations in Role Analysis: Studies of the High School Superintendency Role (New York: John Wiley and Sons, Inc., 1957.

[40]Alex Bavelas, "Leadership: Man and Function," Administrative Science Quarterly, 4:491-498, March 1960, pp. 495-496.

different members of the work or task group.[41] If a group is to accomplish its mission, certain leadership functions or roles must be performed, whether by an appointed leader or by temporary informal leaders.

According to Maier, the supervisor of a group of subordinates has two roles when the group is engaged in a decision-making process.[42] In one role he is the discussion leader and has the job of conducting the discussion of the problem at hand. In the other role he is an expert who has certain information about the problem which the group needs to deal competently with the problem. Krech, Crutchfield, and Ballachey have identified fourteen different roles which the leader must perform, whatever the form of the organization. These include the roles of executive, planner, policy maker, expert, external group representative, controller of internal relations, purveyor of rewards and punishments, arbitrator and mediator, exemplar, symbol of the group, substitute for individual responsibility, ideologist, father figure, and scapegoat.[43] In much the same fashion, Bales has offered a hypothesis of two complementary leaders: one a task specialist, the other a social-emotional specialist.[44] Bavelas has also proposed that the variety of leadership functions usually found

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[41] R. W. Burns, "Effects of Variation in Leadership on Participant Behavior in Discussion Groups," Unpublished Ph.D. Dissertation, University of Michigan, 1948.

[42] Norman R. F. Maier, Psychology in Industry, 2nd ed. (New York: Houghton Mifflin Company, 1955), pp. 166-167.

[43] Krech, Crutchfield, and Ballachey, op. cit., pp. 428-431.

[44] Robert F. Bales, "Task Roles and Social Roles in Problem-Solving Groups," in Eleanor E. Maccoby, I. M. Newcomb, and E. L. Hartley (eds.), Readings in Social Psychology (New York: Holt, Rinehart, and Winston, Inc., 1958), p. 441.

in groups stems from the underlying idea that leadership acts are those which help the group to achieve its goals.[45]

The military supervisor is also expected to perform in such a variety of roles. Thus, the leadership behavior of the supervisor becomes a highly generalized role enacted within a specific group setting. The specific behaviors expected of the supervisor include those expected by the organization or institution, those of his superiors, and those of his subordinates. Over-all, these many and varied leadership behaviors are expected because they are necessary to the accomplishment of the group mission and the maintenance of the group as a functioning unit.

Recalling the fourteen functions of Krech, Crutchfield, and Ballachey, it is quickly recognized that one person could seldom perform effectively in all of them. In most modern organizations, as Bavelas has noted, there is a tendency for these several leadership roles to be shared.[46] Krech, Crutchfield, and Ballachey have also pointed out the complexity of the leadership role but have suggested that the emergence of the varied leadership roles depends upon situational factors.[47] Some of the more relevant of these situational factors would appear to include the nature of the organization and whether the leader is an appointed leader or an elected leader. In voluntary organizations the elected leader is usually a "natural" leader that has emerged. The elected leader, according to theory, is one who represents and articulates group

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[45]Bavelas, op. cit., p. 495.

[46]Bavelas, op. cit., p. 497.

[47]Krech, Crutchfield, and Ballachey, op. cit., p. 432.

values to others, both within and outside the group. This is not the case in military organizations. Supervisors in military organizations are not always natural leaders nor are they usually able to function as a natural leader. Andrews has concluded that "a first-line supervisor can be appointed to his organizational position by management, but he cannot, through his appointment, be made the natural leader."[48] Appointments to supervisory positions in hierarchical organizations are based on authority. They result in supervisory headship, but not necessarily in leadership. Sometimes, as a consequence, the appointed leader is an individual who would not be chosen by the group. Nevertheless, at least in military situations, he cannot be rejected by the group.

As a result of his organizational position, the supervisor in military organizations has many restrictions imposed upon his activities which do not confront the natural leader. Appointed leaders often are appointed not because of their leadership qualities or the fact that they have group acceptance, but because of their technical abilities. Whatever the basis for the appointment, the appointed leader finds, that once there, it is necessary for him to get things done through other people. To view first-line supervisors in military organizations as natural leaders is to overlook the organizational setting in which supervision is practiced. The leadership function in military organizations is more limited than that of the elected leader. Every supervisory position in the military organization is clothed with an express delegation of authority—command authority. It is exercised by virtue of rank or

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[48]Richard E. Andrews, Leadership and Supervision (Washington, D. C., Government Printing Office, U. S. Civil Service Commission, 1955), p. 23.

position. It incorporates the idea that the person designated or appointed as supervisor has the legal right to command someone else and that the subordinate has a legal duty to obey.[49]

However, as has often been found to be true, the right to command does not always mean strength or capacity to command. This is where leadership comes in. Leadership depends more upon pervasive influence than authority and power.[50] The role of leadership is emphasized as the role of authority is de-emphasized. To the extent that the appointed leader has some latitude in his choice of approach in directing his subordinates the door is held open for him to gain acceptance as a true natural leader of his group in time.

III. THE DIMENSIONS OF LEADERSHIP

Types of Supervisory Behavior

Much of the research on the problem of leadership has dealt with the effects of leadership upon such dependent variables as morale, productivity, personnel turnover, and job satisfaction. The primary focus of research of this type has been the style or type of leadership behavior exhibited by the leader or supervisor. There is considerable evidence in the literature which tends to support a two-dimensional concept of leadership behavior. While such terms as "democratic," "autocratic," "laissez-faire," "authoritarian," "bureaucratic," "employee-centered," "production-centered," "consideration," and "initiating

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[49]Department of the Air Force, Air Force Leadership, Air Force Manual 35-15, 1948, p. 4.

[50]This discussion does not deny that the ability to influence other people (leadership) often involves the use of power.

structure" are particularly conspicuous in the literature, three major typologies of leadership behavior have evolved.

The experimental work of Lewin, Lippitt, and White[51] and the later work of White and Lippitt[52] employed three degrees of control over group activity. These were labeled as "democratic," "autocratic," and "laissez-faire." The research work of the University of Michigan's Survey Research Center has identified two types of supervisory behavior, one that is essentially "employee-centered" and one that is "production-centered."[53] The third major classification resulted from the empirical findings of The Ohio State Leadership Studies, conducted by the Personnel Research Board. Using a factor analytic technique, Halpin and Winer[54] and Fleishman[55] identified two major independent dimensions of leadership behavior which were called "consideration," and "initiating structure." An examination of the behaviors which have been related to each of these

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[51]Karl Lewin, R. Lippitt, and R. White, "Patterns of Aggressive Behavior in Experimentally Created Social Climates," Journal of Social Psychology, 10:271-299, May 1939.

[52]Ralph White and R. Lippitt, "Leader Behavior and Member Reaction in Three 'Social Climates'," in Dorwin Cartwright and Alvin Zander (eds.), Group Dynamics, 2nd ed. (Evanston: Row-Peterson and Co., 1960).

[53]Rensis Likert and D. Katz, Supervisory Practices and Organizational Structure As They Affect Productivity and Morale (New York: American Management Association, Personnel Series No. 120, 1948).

[54]A. W. Halpin and B. J. Winer, "A Factorial Study of the Leader Behavior Descriptions," in R. M. Stogdill and A. E. Coons (eds.), Leader Behavior: Its Description and Measurement (Columbus: The Ohio State University, Bureau of Business Research, Research Monograph No. 88, 1957), Chapter IV.

[55]Edwin A. Fleishman, "A Leader Behavior Description For Industry," and "The Leadership Opinion Questionnaire," in Ralph M. Stogdill and A. E. Coons (eds.), ibid., Chapters IX and X.

types or dimensions of supervisory behavior will reveal that a close similarity exists between democratic leadership, employee-centered supervision, and the dimension of consideration. A pattern of similarity also exists between authoritarian leadership, production-centered supervision, and the dimension of initiating structure. These three classifications have been widely used in empirical researches and writings on the general subject of leadership behavior.

While the argument continues over which type of supervisory behavior is most effective, the literature suggests that behavior patterns usually associated with "democratic" leadership have been most widely accepted. Its acceptance has been facilitated by the numerous research findings which show it to result in greater productivity, greater individual satisfaction, increased group solidarity and cohesiveness, plus its conformance to the democratic ideals of our society. The fact that the debate continues, however, suggests that there are points of view which both support and challenge each of the two types.

Studies reported by Lewin;[56] Roethlisberger;[57] Indik, Georgopoulos

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[56]Kurt Lewin, "The Consequences of an Authoritarian and Democratic Leadership," in Alvin W. Gouldner, (ed.), Studies in Leadership (New York: Harper and Brothers, 1950).

[57]F. J. Roethlisberger, Management and Morale (Cambridge: Harvard University Press, 1946).

and Seashore;[58] Baumbartel;[59] Kahn and Katz;[60] and Likert,[61] to name a few, show behavior patterns associated with democratic leadership to be related to certain desirable end results.

Undoubtedly the chief proponent of the authoritarian style of leadership is R. N. McMurry.[62] While McMurry offers a number of reasons for the failure of the democratic methods, much of his argument centers on the ideological incompatibilities of democratic leadership and the work environment. He argues that the strong, but benign leader is more suited to cope with the practicalities of the work environment.

Other authorities have, with equal zeal, refrained from choosing sides in the debate. Instead, they have pointed out that these types of leadership are representative or ideal types--they are rarely found in their pure forms.[63] Tannenbaum and Schmidt, for example, identify a

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[58]Bernard P. Indik, B. S. Georgopoulos, and S. E. Seashore, "Superior-Subordinate Relationships and Performance," Personnel Psychology, 14:357-374, Winter 1961.

[59]Howard Baumgartel, "Leadership Style As A Variable in Research Administration," Administrative Science Quarterly, 2:344-360, December 1957.

[60]Robert L. Kahn and D. Katz, "Leadership Practices in Relation to Productivity and Morale," in Dorwin Cartwright and Alvin Zander (eds.), Group Dynamics, 2nd ed. (Evanston, Illinois: Row, Peterson and Company, 1962).

[61]Rensis Likert, New Patterns of Management (New York: McGraw-Hill Book Company, Inc., 1961.

[62]Robert N. McMurry, "The Case for Benevolent Autocracy," Harvard Business Review, 36:95-101, January-February 1958).

[63]Eugene E. Jennings, The Executive: Autocrat, Bureaucrat, Democrat (New York: Harper and Row, 1962), and Robert Tannenbaum and W. H. Schmidt, "How to Choose A Leadership Pattern," Harvard Business Review, 36:95-101, March-April 1958.

range of possible leadership behavior. Actual leadership behavior, that is, the specific behavior within the range of possible behavior, tends to be a function of certain situational factors. In deciding how to lead, they suggest that the manager must consider three forces: "(1) Forces in the manager, (2) Forces in the subordinates, and (3) Forces in the situation."[64]

While there is evidence supporting a two dimensional classification of supervisory behavior, there are some significant differences in the various classifications. For example, in their studies in the insurance company[65] and on the railroad[66] the researchers of the University of Michigan Survey Research Center treated employee-centered behavior and production-centered behavior as though they were opposite ends of the same single continuum. They had assumed, in other words, that as a supervisor became more employee-centered in his leadership behavior he must, of necessity, become less production-centered. This assumption was inconsistent with the findings of the Ohio State Leadership Studies. Scores on consideration and initiating structure, as tested by the various instruments developed by the Personnel Research Board of The Ohio State University, show an essential independence. For example, Fleishman found correlations of —.01 based on a sample of 122 industrial supervisors and

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[64]Tannenbaum and Schmidt, ibid., p. 98.

[65]D. Katz, N. Macoby, and Nancy C. Morse, Productivity, Supervision, and Morale in an Office Situation (Ann Arbor, Michigan: Survey Research Center, 1951).

[66]D. Katz, N. Macoby, G. Gurin, and L. Floor, Productivity, Supervision and Morale Among Railroad Workers (Ann Arbor, Michigan: Survey Research Center, 1951).

correlations ranging from —.23 to .08 for nine other military and industrial populations.[67]

Meanwhile, further research by the Michigan Survey Research Center produced data which led to a re-interpretation of the relationship between employee-centered and production-centered supervision. Findings of a study in a tractor company suggested that employee-centered behavior and production-centered behavior should be regarded as theoretically independent dimensions of supervisory behavior.[68] After a review of this study and the two earlier ones, Kahn has concluded that "most successful supervisors combine employee-centered and production-centered qualities, working out their own creative way of synthesizing these two concerns."[69]

Recognition that there are distinguishing forces or factors which must be considered in every leadership situation has led many authors to become dissatisfied with the pure-form, either-or approach to leadership. McMurry has advocated a "benevolent autocratic" approach.[70] Chris Argyris has suggested a "reality-centered" approach.[71] Borrowing Drucker's

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[67]Edwin A. Fleishman, "The Leadership Opinion Questionnaire," in R. M. Stogdill and A. E. Coons (eds.), Leader Behavior: Its Description and Measurement (Columbus: The Ohio State University, Bureau of Business Research, Research Monograph No. 88, 1957), p. 126.

[68]Daniel Katz and R. L. Kahn, "Human Organization and Worker Productivity," in L. R. Tripp (ed.), Industrial Productivity (Madison, Wisconsin: Industrial Relations Research Association, 1951).

[69]Robert L. Kahn, "Productivity and Job Satisfaction," Personnel Psychology, 13:275-287, Autumn 1960, p. 282.

[70]McMurry, loc. cit.

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

phrase, "management by objective," Douglas McGregor has formulated a number of principles that outline a "problem centered" approach to organizational leadership.[72]

Leadership Climate

The above discussion has pointed to the possible impact of the leadership behavior of the supervisor upon the behavior of his followers. Other studies offer evidence that the actual behavior of the supervisor is influenced primarily by the attitudes and behavior of his superior. The most noteworthy study in this respect is that of Fleishman, who studied the changes in leadership behavior of a group of industrial supervisors after they had attended a company wide human relations training program.[73] He found that such training may produce unanticipated results when the supervisors return to the work environment. Marked improvement in the attitudes and skills of the supervisors was found immediately after their participation in the training program. Within a few months, however, the supervisors had reverted to their pretraining modes of behavior. It was concluded that the variable that made the most difference in determining how different supervisors led their groups was the kind of boss (leadership climate) under whom the

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[72]Douglas McGregor, Management by Objective, (MIT Reprint) cited in Warren G. Bennis, "Leadership Theory and Administrative Behavior: The Problem of Authority," Administrative Science Quarterly, 4:259-301, December 1959.

[73]Edwin A. Fleishman, "Leadership Climate, Human Relations Training and Supervisory Behavior," Personnel Psychology, 6:205-222, Summer 1953, p. 211. For a more detailed description of this study, see Edwin A. Fleishman, E. F. Harris, and H. E. Burtt, Leadership and Supervision in Industry (Columbus: The Ohio State University, Bureau of Educational Research, 1955), Chapter VI.

supervisors themselves had to operate. Supervisors working under superiors who were considerate (treat people as equals, be willing to make changes, and so forth) tended to be more considerate of their subordinates than supervisors who operated under superiors who were less considerate. In turn, those supervisors who worked under superiors who structured the work situation (stressed deadlines, assigned people to specific tasks, and so forth) also tended to perform in the same way. Something like a chain reaction was observed—the attitudes and behavior of a superior were transmitted to the supervisor working under him.

Another vein of research has dealt with the problem of reactions to styles of leadership in terms of personality differences of followers. One of the earliest studies of this type was the pioneering work of Lewin, Lippitt, and White.[74] They investigated the effects of authoritarian, democratic, and laissez-faire styles of leadership on the behavior of children in organized play groups. Differences in behavior were found to result from the three styles of leadership. Generally, the democratic leadership was able to secure more favorable results. One of the more significant findings of this research was the reactions of the followers to the single leadership patterns. While diverse reactions were observed to each of the three styles, the reactions to the authoritarian pattern were more pronounced. These ranged from dependence and acceptance to hostility and aggression. The authors attributed these differences in reactions to the differences in the personalities of the boys in the follower groups. Worth noting here is the authors' description of one

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[74]Lewin, Lippitt, and White, loc. cit.

small member, the son of a regular Army officer, who found the democratic atmosphere especially frustrating.

Sanford, in his classical study of follower's orientation to authority, also dealt with the problem of individual differences as they determine reactions to leadership behavior.[75] In this instance, too, the reactions to authoritarian leadership were more obvious. The equalitarian personality accepted authoritarian leadership only as the crisis-type situation demanded it. The authoritarian personality, on the other hand, preferred the strongly directive type of leadership and regarded the authoritarian leader to be more effective than his democratic counterpart.

The importance of the attitudes and expectations of followers as a part of the leadership climate of the supervisor is emphasized in a study by Vroom. In his study of the interaction of personality and environmental factors as determinants of leadership behavior, Vroom notes that "the most effective behavior in dealing with individuals with certain personality characteristics may be completely ineffective in dealing with persons with different personalities."[76] The implication of his observation is that supervisory leadership must be evaluated in terms of a number of other variables including the attitudes, needs, and expectations of the followers.

A consideration of these findings suggests the conclusion that the leadership climate of a supervisor is made up not only of the attitudes

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[75]Fillmore H. Sanford, Authoritarianism and Leadership (Philadelphia: Institute for Research in Human Relations, 1950), Chapter XI.

[76]Victor H. Vroom, Some Personality Determinants of the Effects of Participation (Englewood Cliffs, N. J.: Prentice-Hall, Inc., 1960), p. 3.

and behavior of superiors, but also the expectations and reactions of subordinates. A recent study by Likert lends support to this conclusion. After reviewing research on the effectiveness of different methods of supervision in industry, he concluded:

> All of the perceptions, expectations, values, and interpersonal skills of the subordinate influence his response to each act of his superior. Supervision is, therefore, an adaptive and relative process in the sense that the supervisor, to be effective, must always adapt his behavior to fit the expectations, values, and interpersonal skills of his subordinates.[77]

But Likert's observation went further. Recognizing the importance of all the personnel components of the work environment of the supervisor, Likert further concluded that "the converse is equally true. For effective interaction, the subordinate must relate his behavior to the expectations, values, and interpersonal skills of his superiors."[78]

These findings point to the need for a re-examination of some of the traditional assumptions and premises upon which efforts to improve the effectiveness of the first-line supervisor have been based. This new emphasis does not deny the importance of universal principles of supervision and leadership. On the contrary, it would broaden them in a manner to allow for adequate consideration to be given not only to the observed act but to the meanings associated with that act. It is this added dimension which makes the supervisory process, in Likert's words, an "adaptive and relative process."[79]

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[77] Rensis Likert, "Effective Supervision: An Adaptive and Relative Process," Personnel Psychology, 11:311-332, Autumn 1958, p. 317.

[78] Ibid.

[79] Ibid., p. 311.

The implications of Likert's conclusion are well illustrated in a study by Stanton.[80] This study will be reported in greater detail because of its relevance to the present investigation.

Stanton's research was designed to study the relationship between company policies and supervisor's attitudes toward supervision in two organizations, one of which was characterized as having democratic management, the other, authoritarian management. It was found that in both companies there was no significant difference in supervisor's attitudes as to the extent of consideration that should be shown toward subordinates. There was a significant difference, however, in the attitudes of the supervisors as to the extent of structure which should be provided in the working relationships of the supervisor and his subordinates. Within the democratic company, the supervisors believed that they should offer less operating structure and favored permitting subordinates a greater amount of personal control over performance of their jobs. In the authoritarian company, supervisors believed in establishing a high degree of operating structure in their relationships with subordinates.

The findings of this research suggest "that a company can offer an authoritarian approach to leadership and still show consideration for the individual employee.[81] This study, it will be noted, failed to confirm the widely held assumption that an authoritarian approach on the part of a supervisor must, of necessity, be accompanied by a lack

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[80]Erwin S. Stanton, "Company Policies and Supervisors' Attitudes Toward Supervision," Journal of Applied Psychology, 44:22-26, February 1960.

[81]Ibid., p. 26.

of consideration for the rights and feelings of subordinates. While these two companies varied in their approach to leadership, both attempted to be considerate of the feelings and desires of their employees.

As Likert has concluded, the leadership climate under which the supervisor works is a two-dimensional climate. It is made up of the expectations and desires of both superiors and subordinates. Fleishman's study has shown the importance of the attitudes and behavior of superiors as a determinant of the actual leadership behavior of the supervisor. Vroom's study indicates that the attitudes and reactions of subordinates also influence the supervisor's behavior. Stanton has shown that supervisors can follow the over-all organizational approach toward structuring the working relationships of supervisors and subordinates and, at the same time, show a high degree of consideration for the desires and feelings of subordinates. Thus, supervisors can be responsive to the expectations of both superiors and subordinates when these expectations are not in direct conflict.

Leadership In Military Organizations

The difficulties of the appointed leader in military organizations functioning as a natural leader have been discussed. There remains one useful comparison to be made between leadership in military organizations and leadership in nonmilitary organizations. What is the difference between leadership in military organizations and leadership in business

organizations? While there are no precise answers to this question,[82] it is possible to discern certain differences which revolve around situational differences between the two types of organization.[83]

Leadership situations in the Air Force vary from those of armed combat to those under noncombat conditions. In combat the motives of men are primarily to survive. Other needs are probably present, but to a lesser degree. This does not deny the presence of social needs nor the importance of good human relations in combat. It does mean that subordinates will follow a combat leader (supervisor) who appears to them as being able to help them survive. They will follow him even though he does not reflect those otherwise desirable characteristics of being a pleasant, considerate, and friendly person. The literature suggests that subordinates in industrial situations would not accept a leader of this type. This difference is considered important.

Under noncombat situations, certain differences still remain between military leadership and industrial leadership. Most of these differences, however, center around the characteristics of the superior-subordinate relationship. The military member is not a free agent to

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[82]The absence of comparative studies of military and industrial organizations has been noted by Janowitz: "Not a single empirical study exists comparing the military with business or other types of organization on this question, yet such studies would seem to be a first step in assessing the relevance of so-called principles of business administration for military organization." See Morris Janowitz, Sociology and the Military Establishment (New York: The Russell Sage Foundation, 1959), p. 88.

[83]The discussion which follows is largely adapted from "Industrial Leadership and Military Leadership" in Principles of Leadership and Management (Maxwell Air Force Base, Alabama: Air University, Air Force ROTC, 1954), pp. 124-125.

the extent that his counterpart in industry is. The military member cannot quit. He cannot tell off an officious superior. He cannot choose his job or place of residence. These are differences between having to stay and having to obey and choosing to stay and choosing to obey. Again, these differences are deemed important.

The significance of these differences upon the actual processes of leadership are difficult to evaluate. In combat situations they are probably more significant than under noncombat situations. The fact that the military member, even in peace time, must be prepared for combat suggests that really effective leadership requires more carefully considered human relations in military than in industrial organizations.

This discussion points to a really significant fact for Air Force leadership. Of all the duties performed by enlisted personnel, only seven types of duties require the person performing those duties to participate in actual combat. That is, only seven of several hundred enlisted jobs involve assignments to combat aircraft. This means that the vast majority of leadership situations in the Air Force take place under noncombat conditions. Thus, the vast majority of leadership situations in the Air Force are more comparable to those taking place in industry than to those taking place in military organizations under conditions of armed combat. Leadership in these noncombat situations can be practiced much as it is in industrial organizations. However, it cannot be forgotten that even in time of peace the military man must be prepared for a time of conflict. The impact of this requirement upon leadership processes is unknown.

IV. SUMMARY

This review of the literature has been selective. Certain landmark studies have been reviewed for the purpose of providing a body of relevant theory and a theoretical frame of reference for the present study.

Technological and social changes within the military services following World War II have necessitated a re-examination of many of the traditional assumptions underlying much of the research on leadership in military organizations. There is an increasing recognition within the military services that successful leadership depends upon the use of human relations skills. There has been a shift from the traditionally predominant use of authority and discipline to a greater reliance on positive leadership, loyalty, and group consensus.

Viewing leadership as an organizational function has permitted a more accurate analysis of the differences in leadership as practiced by the appointed leader in military organizations, the appointed leader in industrial organizations, and the elected "natural" leader.

Many of the research findings reviewed in this chapter were derived from investigations performed within the context of nonmilitary organizations. The present study draws upon these findings for an investigation of the perceptions which superiors and subordinates have of the leadership role of military and civilian supervisors in a military setting. This study is considered important in that it attempts to deal with personnel components which have been dichotomized into military and civilian elements.

CHAPTER III

RESEARCH DESIGN AND METHODS OF STUDY

The research design for this study is an exploratory field survey of the perceptions which superiors and subordinates have of the leadership role of the first-line supervisor in military organizations. This study represents an attempt to apply the methods of social science to the problem of determining whether the leadership role of the military supervisor is perceived to be different from that of the civilian supervisor. In preparation for a presentation of the findings of the study, this chapter will describe the broader outlines of the research design, the setting in which it was carried out, the questionnaires used, and the sources of the data.

I. ADMINISTRATIVE PROCEDURES

The conduct of a research study of this type at a large military installation presents a number of unusual administrative problems.[1] Paramount of these problems are obtaining and maintaining cooperation and support at various organizational levels, identification and selection of personnel to complete the questionnaires, assuring anonymity, and the usual problems of collecting data without interruption of the activities of the participating organizations. Being a member of a military

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[1] For a comprehensive discussion of the problems peculiar to research in a military organization, see N. J. Demerath, "Initiating and Maintaining Research Relations In A Military Organization," Journal of Social Issues, 8:11-23, No. 3, 1952, and David N. Solomon, "Sociological Research In A Military Organization," The Canadian Journal of Economics and Political Science, 20:531-541, November 1954.

service, the author was able to understand the circumstances of these problems and to work in terms of the restrictions imposed by them.

Final determination of the over-all design of this study was contingent upon finding a research site from which random samples from various strata of organization could be selected. The tentative design called for samples of military and civilian personnel to be selected from three organizational components. These were first-line supervisors and immediate superiors and subordinates of first-line supervisors. Samples of fifty military persons and fifty civilian persons were to be selected from each of these components. The sample of superiors was to be limited to those superiors who actually had both military and civilian supervisors working under them. The sample of subordinates was to include twenty-five military and twenty-five civilian subordinates working for a military supervisor and twenty-five military and twenty-five civilian subordinates working for a civilian supervisor.

These aspects of the tentative design of the research study had the effect of defining the various populations from which samples were to be selected. From three component populations eight sub-populations were thus defined: two of superiors, two of supervisors, and four of subordinates. Another requirement of the research design was that the organizational elements from which these samples were to be selected must not have combat responsibilities. The possible difficulties in satisfying these requirements at a single installation were recognized.

At this point, visits were made to various Air Force bases in the western and northwestern part of the country. Choosing an Air Force base as a research site was considered desirable because of the author's

greater familiarity with and understanding of Air Force administrative procedures and organizational structures. These visits were undertaken for the purpose of locating, if possible, a single base which would adequately satisfy the requirements of the research design. At each base, in meetings with responsible base officials, the purpose of the visit was explained, as was the general purpose and outline of the proposed study. It was emphasized that the purpose of the visit was to evaluate the organization as a possible research site and, should that base subsequently be found suitable and chosen as the research site, a proper request for authorization to conduct the research would be submitted. General problems associated with the administration of a research study were also discussed.

It had been anticipated that there would be difficulties in finding base commanders who would be sympathetic to or understand the purposes of the research. Such was not the case. Without exception, commanders expressed an interest in the proposed research and offered to cooperate in any way possible. In one or two instances actual encouragement was received to conduct the research at particular bases. It was surmised that these commanders were interested in some practical benefit of the study which could be applied to local problems.

While expressing their willingness to cooperate in the study, base commanders uniformly stressed certain conditions which would have to be complied with as requisites to authorizing the research. The first of these provided that work schedules must not be interrupted. Explicit in this requirement is a recognition of the importance of the mission being performed by each of the organizations contacted.

A second requirement related to the provision that all subjects selected for testing must be volunteers—they must agree to completing the questionnaires. No classified information could be discussed, and, finally, the identity of the base and the persons involved must not be revealed. These requirements presented no difficulty to the administration of the research and the reasonableness of the requirements was acknowledged.

It was requested at each base, assuming that particular base was finally selected as the research site, that the researcher be permitted to wear civilian clothing during the administration of the research on the base. Each base contacted was willing to grant this request provided adequate identification was made to each organizational element contacted during the research.

While at each base an inquiry was made as to the availability of office space which could be used for the purpose of administering the questionnaire to large numbers of people at one time. Adequate facilities were found to exist at each base. The importance of these facilities for questionnaire administration was emphasized.

Getting acquainted with the organization was not considered a superficial process. Acquiring as much information as is possible about a base, the structure of its organization, and the make-up of the personnel assigned to or working in these organizations is necessary if the researcher is to rationally select a research site.

II. THE RESEARCH SETTING

The base finally selected as the site for the research adequately met the requirements which had been incorporated into the tentative design of the study. Most of the bases visited were considered inadequate primarily because of possible difficulties in securing a sample of superiors, both military and civilian, who were in turn actually supervising both military and civilian personnel (supervisors). This requirement became decisive in the end and was instrumental in the final selection. The base commander of the selected installation was very sympathetic to social science research and welcomed this particular study.

Numerous other factors also contributed to the final selection. One of these was the total population of the base. At the time the research was actually conducted the work force of the base consisted of approximately 1,125 officers, 5,837 airmen, and 1,231 civilian personnel. This work force proved to be large enough to permit random selection of samples from the three personnel components of the organization. Of great importance, too, was the fact that the selected site had a number of classrooms which could be used for administration of the questionnaires. These classrooms were centrally located and could accomodate up to 140 persons at a time.

The primary mission of the base selected as the research site included providing trained combat and support units for the active air defense of an assigned geographical area of responsibility. This part of the total mission was further specifically assigned to a number of squadrons to which combat-type aircraft and the necessary personnel were

assigned. Beside these squadrons, which had the responsibility for aircraft operations, there were the usual organizational elements which provided the necessary administrative, financial, logistical, and personnel support. It was from these latter organizational elements that the samples to be tested were selected. The organizations studied were structured fundamentally according to the traditional military organizational form. By this is meant there was a high degree of specialization, a clear cut hierarchy, centralized authority, rationalized planning, and formal prescription of role and status.

The total number of the work force of this base, as well as the physical size of the base, make it one of the largest installations in the Air Force. The military personnel assigned to this base claimed legal residences in almost all of the fifty states. Many of them lived in military housing located on the base. Others lived in surrounding communities. The civilian personnel working at the base were, for the most part, legal residents of the state in which the base was located. From the viewpoint of coming from a common geographical area, the civilian personnel constituted a much more homogenuous group than did the military personnel.

III. THE RESEARCH INSTRUMENTS

In order to test the several hypotheses delineated in the design of this study, it was considered necessary to obtain from superiors and subordinates quanitative descriptions of the leadership behavior they expected of first-line military and civilian supervisors. Also necessary was obtaining comparable quantitative assessments of the leadership attitudes of the supervisors themselves. Due consideration of the size of the

samples to be tested led to the decision to employ a questionnaire. Measurement of perceptions and attitudes, like the measurement of most psychological variables, is necessarily indirect. The questionnaire is considered the most widely used and the most carefully designed and tested means of measuring perceptions and attitudes.[2] Use of a questionnaire also offered the promise of economy of time and ease in the gathering of data. It is generally considered easier for respondents to complete evaluative statements on a scale than to respond verbally to a number of questions asked them.

While the convenience of the paper and pencil test is a desirable characteristic, the general nature of this type of test subjects it to the influences of personal modes of responding to particular test items. Cronbach has referred to these personal modes of responding as "response sets," which he defined as "any tendency causing a person consistently to give different responses to test items than he would when the same content is presented in a different manner."[3] The implication of this definition is that the score of a respondent is influenced by his tendency or "set" to react to items in a certain way, apart from the content of the items. The significance of this tendency to respond in certain "sets" is that both the reliability and validity of tests can be affected.

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[2]David Krech, R. S. Crutchfield, and E. L. Ballachey, Individual in Society (New York: McGraw-Hill Book Company, Inc., 1962), p. 147.

[3]Lee J. Cronbach, "Response Sets and Test Validity," Educational and Psychological Measurement 6:475-494, Winter 1946. See also, Lee J. Cronbach, "Further Evidence on Response Sets and Test Design," Educational and Psychological Measurement 10:3:31, Spring 1950, and Anne Anastasi, Psychological Testing (New York: The MacMillian Company, 1959), pp. 62-64.

While there are many varieties of response sets,[4] the one with which the investigator was most concerned in the present research related to the possibility that respondents might tend to give what are considered socially desirable responses to the items in the questionnaires. In what is generally considered a pioneering study on the influence of "social desirability set," Edwards found that the probability of endorsement of an item increases with the judged desirability of the item.[5] This finding raises the possibility that, for example, respondents will endorse more frequently those items which reflect behavior patterns judged to be socially desirable either by his reference group or by his superiors. Likewise, he might tend to reject those items which reflect behavioral patterns considered undesirable by his reference group or his superiors. In other words, the subject tends to respond in a manner which, hopefully, will result in a good impression of himself. This tendency to give socially acceptable answers rather than those which express the respondent's true feelings results in problems of interpretation.

The investigator was unable to find any evidence that the items in the questionnaires used in the present research have been evaluated in terms of the possible influence of response sets. Other than the studies by Cronbach and Edwards, most of the research on this problem

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[4]See Cronbach, "Response Sets and Test Validity," pp. 476-483, and Douglas N. Jackson and Samuel Messick, "Content and Style in Personality Assessment," Psychological Bulletin 55:243-252, July 1958.

[5]Allen L. Edwards, "The Relationship Between the Judged Desirability of A Trait and the Probability That the Trait Will be Endorsed," Journal of Applied Psychology 37:90-93, April 1953, p. 93.

has been conducted subsequent to the development of the questionnaires used in this research. Certain precautions were taken, however, to minimize the possible effect of response sets on the final test scores. First, and perhaps most important, was the fact that the investigator appeared in civilian clothing and, in other ways, minimized the possibility of his being recognized as a member of the Air Force. The intended usage of the data was emphasized, thus allaying the possibility that the respondents might tend to give "officially" acceptable answers to the items. Also, the need for personal opinions was emphasized.

The problem of response sets in the administration of the questionnaires is discussed in a later section.

Two criteria were considered important in the selection of a measuring instrument. First, the over-all research objective required quantitative description of the dimensions of leadership behavior being measured. Secondly, it was considered desirable to employ the descriptive terms given to the dimensions of leadership behavior actually measured in the final formulation of the basic hypotheses to be tested. An extensive review of the literature and research findings employing a wide variety of measuring instruments was undertaken.

In choosing between developing an instrument specifically for this research and using an existing instrument the final decision was in favor of the latter alternative. More specifically, it was decided to use two questionnaires developed by the Personnel Research Board of The Ohio State University. The Supervisory Behavior Description Questionnaire (SBDQ) was selected to measure the perceptions which superiors and

subordinates have of the leadership role of the first-line supervisor.[6] The Leadership Opinion Questionnaire (LOQ) was selected to assess the leadership attitudes of the supervisors.[7]

Permission to use these two questionnaires and to alter the wording of the items in the questionnaires to fit the situational context was secured from The Ohio State University. Before describing how each of these questionnaires was utilized in the present research, certain historical facets of their development and use will be reported.

Supervisory Behavior Description Questionnaire

A number of exploratory studies have been reported which dealt with a factor analysis of behavioral statements in an attempt to isolate dimensions of leadership which could be considered common to all leadership behavior.[8,9] Another of these studies was conducted by Halpin and Winer, who reported two essentially independent factors similar to "employee-oriented" leadership and "production-oriented" leadership.[10]

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[6]Edwin A. Fleishman, "A Leader Behavior Description For Industry," in R. M. Stogdill and A. E. Coons (eds.), Leader Behavior: Its Description and Measurement (Columbus: The Ohio State University Bureau of Business Research, Research Monograph No. 88, 1957), Chapter IX.

[7]Edwin A. Fleishman, "The Leadership Opinion Questionnaire," in R. M. Stogdill and A. E. Coons (eds.), ibid., Chapter X.

[8]R. L. Hobson, "Some Psychological Dimensions of Academic Administrators." Unpublished Doctoral Dissertation, Purdue University, 1948.

[9]J. C. Rupe, "Some Psychological Dimensions of Industrial Executives." Unpublished Doctoral Dissertation, Purdue University, 1950.

[10]Andrew W. Halpin and B. J. Winer, "A Factorial Study of the Leader Behavior Descriptions," in R. N. Stogdill and A. E. Coons (eds.), op. cit., Chapter 3.

Halpin and Winer called these two factors "consideration" and "initiating structure."[11]

Researchers associated with the Personnel Research Board undertook to develop methods for measuring these two dimensions of leadership behavior. The initial instrument developed in this effort was the Leader Behavior Description Questionnaire (LBDQ).[12] It was this instrument which was later factor analyzed and modified by Halpin and Winer for use in different situational contexts. In their analysis of the LBDQ, Halpin and Winer found that the two factors of consideration and initiating structure together accounted for 83 per cent of the common variances of the differences in the behavior of the air-crew commanders under study.[13]

The LBDQ was subsequently revised by Fleishman for use in industrial situations. In his revision, Fleishman undertook to completely minimize the association between these two factors. The final form of the questionnaire, which he referred to as the SBDQ, included forty-eight Likert-type items and is typically given to subordinates who are asked to describe the behavior of their supervisors. The consideration dimension was measured by twenty-eight items and the structure dimension by twenty items. Alternatives for each item were weighted from zero to four. Thus, the highest possible score for consideration was 112, and

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[11] See pages 2-4 for descriptions of behavioral patterns associated with these two dimensions of leadership.

[12] John K. Hemphill and A. E. Coons, "Development of the Leader Behavior Description Questionnaire," in R. M. Stogdill and A. E. Coons (eds.), op. cit., Chapter II.

[13] Halpin and Winer, op. cit., pp. 42-43.

the highest possible score for structure was 80. Table 1 presents data obtained by Fleishman in a test of 122 industrial foremen.

Table 1

Summary of Results of Testing 122 Industrial Foremen with Supervisory Behavior Description Questionnaire[14]

Statistical measure	Dimension	
	Consideration	Structure
Number of items	28	20
Mean	82.26	51.50
Standard Deviation	15.47	8.75
Range	27 to 106	13 to 68
Reliability	.92	.68
Intercorrelation	-.02	

The intercorrelation of --.02 suggests the essential independence of the two factors. Internal consistency reliability appears adequate and the wide range of scores suggests the elimination of the usual halo effect.

In determining the validity of the SBDQ, various researchers have correlated scores obtained with the SBDQ with independent measures of leadership effectiveness. Fleishman, Harris, and Burtt correlated consideration and dimension scores of 122 industrial foremen with such objective industrial criteria as accident rates, absenteeism, grievances, and personnel turnover. Correlations were also obtained between foremen behavior descriptions and ratings of foremen proficiency by management. Table 2 summarizes these correlations.

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[14]Data from Fleishman, "A Leader Behavior Description for Industry," op. cit., p. 110. Used with permission.

Table 2

Correlations Between the Supervisory Behavior Dimensions and[15] Various Industrial Criteria of Leadership Effectiveness

Criteria	Department	Dimension	
		Consideration r	Structure r
Proficiency Ratings by Foremen's Supervisor	Production	-.31**	.47**
	Nonproduction	.28	-.19
Absenteeism by Foremen's Work Group	Production	-.49**	.27*
	Nonproduction	-.38	.06
Accidents by Foremen's Work Group	Production	-.06	.15
	Nonproduction	-.42*	.18
Formal Grievances by Foremen's Work Group	Production	-.07	.45**
	Nonproduction	.15	.23
Turnover in Foremen's Work Group	Production	.13	.06
	Nonproduction	.04	.51*

N = 72 production departments and 23 nonproduction departments.
*Significant at .05 level of confidence.
**Significant at .01 level of confidence.

Bass and Coates similarly correlated the scores of ROTC cadets with (1) scores on situation performance tests and (2) subsequent ratings by both peers and superior officers.[16] Table 3 summarizes the results of those correlations for the ROTC cadets.

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[15] Data from Fleishman, op. cit., p. 114. Used with permission.

[16] Bernard M. Bass and C. H. Coates, Situational and Personality Factors in Leadership in ROTC (Baton Rouge: Louisiana State University, Unpublished Manuscript), cited in Fleishman, "A Leader Behavior Description For Industry," op. cit., p. 114.

Table 3

Correlations of Supervisory Behavior Dimensions With Other Measures for ROTC Cadets[17]

Measure	N	Dimension	
		Consideration r	Structure r
Ratings by Peers[a]	176	.33**	.18*
Ratings by Superiors[a]	133	.00	-.06
Situational-Test (LDG)[b]	133	-.25**	.32**
Situational-Test Later[b]	165	-.15*	.12
Scholastic Achievement (3 year college grade point average)	133	-.09	-.06
ACE Quantitative plus Language Scores	133	-.04	.14
Gestalt Completion	75	-.02	.05
Concealed Figures	107	.15	.19*
F Scale	165	-.03	-.29**

[a]These ratings were made in terms of "value to the group."
[b]Score obtained was "amount of successful leadership displayed."
*Significant at the .05 level of confidence.
**Significant at the .01 level of confidence.

Examination of the data contained in Tables 2 and 3 reveal that consideration and structure scores are differentially predictive of a number of these criteria. Fleishman summarizes these correlations with the following statement:

> Although the need for additional evidence is great, there is sufficient evidence . . . that the Supervisory Behavior Description scores are predictive of other independent leadership criteria. It may also be pointed out that the measures on the scales may themselves be used as criteria where it is desired to predict certain kinds of leadership behavior from other predictors (e.g., personality measures).[18]

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[17]Data from Fleishman, op. cit., p. 115. Used with permission.

[18]Fleishman, "A Leader Behavior Description For Industry," op. cit., pp. 115-116.

Leadership Opinion Questionnaire

The SBDQ is used primarily to describe the behavior of supervisors. Recognizing the need for an instrument to assess leadership attitudes of supervisors, Fleishman undertook the development and evaluation of a questionnaire for the measurement of leadership attitudes. The resulting questionnaire, the LOQ, was developed in a manner similar to that of the SBDQ.[19] The LOQ has been used in a much greater variety of situations than the SBDQ. In its final form it consisted of forty Likert-type items, twenty items scored for consideration and twenty items scored for structure. Again, alternative responses were weighted from zero to four. For each dimension the highest possible score was eighty. Table 4 summarizes data obtained by Fleishman in a test of 122 industrial foremen.

Table 4

Summary of Results of Testing 122 Industrial Foremen with Leadership Opinion Questionnaire[20]

Statistical Measure	Dimension	
	Consideration	Structure
Number of Items	20	20
Mean	53.9	53.3
Standard Deviation	7.2	7.8
Range	36 to 74	34 to 69
Reliability	.70	.79
Intercorrelation	-.01	

[19] Fleishman, "The Leadership Opinion Questionnaire," op. cit., Chapter X.

[20] Data from Fleishman, "The Leadership Opinion Questionnaire," op. cit., p. 124. Used with permission.

Analysis of the data reveal reliabilities which, although not exceptionally high, are considered adequate. Again, a wide range of scores was obtained. The independence of the two dimensions is attested to by the intercorrelation of -.01.

Validity of the LOQ was evaluated in much the same manner as was the SBDQ. In both cases, the dimensions of consideration and structure were related to what is considered effective leadership within particular organizations. Table 5 summarizes these correlations for the LOQ. For the particular industrial criteria employed some statistically significant validities were found for the consideration dimension, although relatively low validities were found for the structure dimension.

Table 5

Correlations of Leadership Opinion Questionnaire Scores with Industrial Criteria[21]

N	Sample	Criteria	Dimension: Consideration r	Dimension: Structure r
53	First-line supervisors in a petrochemical plant	Forced choice performance ratings two years later	.29**	-.09
42	Sales supervisors	Rank order performance ratings three years later	.32**	.05
145	ROTC cadets	Situational test	-.18*	-.02

*Significant at the .05 level of confidence.
**Significant at the .01 level of confidence.

[21] Data from Edwin A. Fleishman, Manual for Leadership Opinion Questionnaire (Chicago: Science Research Associates, Inc., 1960), p. 7.

A comparison of these two questionnaires reveals them to be very similar in item content. For the LOQ, eighteen of the twenty items in the consideration key and sixteen of the twenty items in the structure key have parallel items in the SBDQ. The reason for the development of two separate questionnaires is best explained in terms of the following:[22]

> It was not possible to select all the items (in the LOQ) from parallel items (in the SBDQ) since the response distribution of certain items tended to be more skewed when the foremen used it to describe their own attitudes than in cases where they used it to describe the behavior of someone else.

The Questionnaires

The research design called for three personnel components to be tested: first-line supervisors, and immediate superiors and subordinates of first-line supervisors. Superiors and subordinates were to be tested to gain quantitative descriptions of their perceptions of the leadership role of military and civilian first-line supervisors. For this purpose the SBDQ was used. Because these two components differed in their relationships and interactions with supervisors, it was deemed necessary to structure the questionnaire to existing characteristics in each case. The LOQ was used to assess the leadership attitudes of the supervisors. Three separate sets of questionnaires were developed. These were identified as Form A, Form B, and Form C. The questionnaire items were randomly distributed and were reworded to suit the situational context.

Form A. The questionnaire used to test the expectations of superiors was called Form A. (See Appendix A.) The measuring instrument used in Form A was the SBDQ.

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[22]Fleishman, "The Leadership Opinion Questionnaire," op. cit., p. 123.

Since superiors and subordinates were to be tested for their perceptions of the leadership role of both military and civilian supervisors, it was necessary that they complete the questionnaire twice: first, for military supervisors and, second, for civilian supervisors. This circumstance raised the possibility of response sets affecting the over-all test performance, although in a somewhat different manner from that discussed above. In the present instance, the concern was related to the possibility that superiors and subordinates, in evaluating the leadership role of the civilian supervisor, might tend to duplicate the responses used in their earlier evaluation of the leadership role of military supervisors. The problem facing the investigator was one of finding ways to cause the respondents to respond, in the second test, independently of their responses in the first test. Attempts to minimize or eliminate the influence of "set" were made in the construction of the questionnaires and in the formulation of the instructions accompanying the questionnaires. The actions will be discussed in later sections.

Part I of Form A was used to test the perceptions which superiors have of the leadership role of military supervisors. Instructions contained in Part I are oriented to this purpose. Part II was used to secure background data. The request for background data was inserted at this point in an attempt to "break" the response set of the respondent before he was asked to describe his perceptions of the leadership role of civilian supervisors. Part III was also employed for the purpose of breaking the response sets. This part, which was not scored, consisted of ten multiple-choice questions in which the respondents were asked to indicate their understanding of the meaning or accepted usage of certain

slang words commonly used in the Air Force. The slang words used in this part were selected from the Air Force Dictionary.[23] An attempt was made to include humorous distractors in each question. Through engaging the respondents in a humorous, but thought-provoking testing situation, it was hoped that the response set employed in evaluating the leadership role of the military supervisor would be "forgotten" before they were asked to evaluate the leadership role of the civilian supervisor. Any utility other than the intended purpose of breaking the response sets was to invoke a few moments of laughter on the part of many respondents. Further efforts to break response sets will be described below.

Part IV was used to test the perceptions which superiors had of the leadership role of civilian supervisors. Items in Part IV duplicate those of Part I. The only difference between the two parts is the instructions.

Form B. Form B was used to assess the leadership attitudes of the supervisors. (See Appendix B.) The questionnaire used in Form B was the Leadership Opinion Questionnaire.

Form C. Construction of the questionnaire to be completed by subordinates presented the same problems as did Form A. Again, the questionnaire was divided into four parts. Part I tested subordinates' perceptions of the leadership role of military supervisors. Part II was used for the purpose of furnishing background data. Part III was used for the same purpose as it was used in Form C, i.e., to break the

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[23]Woodford A. Heflin (ed.), The United States Air Force Dictionary (Washington, D.C.: Government Printing Office, 1956).

response set of the respondents. Items on this part were not scored. Part IV tested subordinates' perceptions of the leadership role of civilian supervisors.

Pre-test of the Questionnaires

After the three forms of the questionnaire were constructed, they were administered to a selected group of military and civilian persons at an Air Force base other than the research site. Criteria identical to those subsequently employed were used in selecting the pre-test sample. Comments and reactions to the questionnaire were solicited. Particular emphasis was given to a request for reactions to the actual wording of the items and the instructions preceding each part of the questionnaire.

This research effort was facilitated in many ways as a result of information gained from the pre-test sample. A number of revisions in the wording of the items and the instructions were made. This pre-test of the questionnaire also furnished reliable estimates of the time required for completion of the questionnaire, which proved useful in later planning. Most important, perhaps, was the experience gained by the investigator. Many of the unknowns involved in administering questionnaires to large groups of people were faced in the pre-test. It was felt that the subsequent administration of the questionnaires was performed much more competently.

Administration of the Questionnaires

The complexities of scheduling respondents to complete the questionnaires were discussed at length with operating officials. (Selection of respondents is fully described in a later section.) It was pointed out that attendance at a scheduled testing period could not be guaranteed--

the demands of the duty situation could not be subordinated to the testing of selected persons. Schedules were developed with this possibility in mind and provisions were made for alternative testing periods.

After a review of the work schedules of the organizations involved, a date for the administration of the questionnaire was mutually selected. Three testing periods were scheduled on this date. Approximately one-third of each of the component samples were scheduled for each of these three testing periods. The first period was at 8:00 a.m., the second at 11:00 a.m., and the third period followed the lunch hour at 1:00 p.m. It was reasoned that this schedule of testing periods would afford minimum interruption of regular work schedules.

Respondents for each of the three testing periods were divided into separate rooms according to the component represented, i.e., superiors to one room, supervisors to another, and subordinates to still another. This procedure was followed in each testing period. It was adopted in order to minimize disruptions of persons departing prior to others who would take more time to complete the questionnaire. It had been found that supervisors required much less time to complete Form B than was required by the other components to complete their questionnaires. Physical separation of the respondents also eliminated the possibility of persons, who in their work relationships were organizationally related to one another, from completing the questionnaires in each other's presence.

The physical separation of the respondents into their respective component groups was, however, approached with caution. Specifically, it was feared that the respondents, should they become aware of the

fact that they were so separated, might tend to respond in terms of the values held by their reference group rather than in terms of their own opinions. Analysis of the composition of the component groups tended to allay this fear. Within each component group there was considerable overlap in terms of military ranks and civilian grades. For example, military members in the rank of staff sergeant were included in all three groups: superiors, supervisors, and subordinates. The groups were also composed of both military and civilian persons. Thus, the possibility of the respondents becoming aware that they were grouped homogeneously was remote.

Actual administration of the questionnaires was conducted by the researcher. At each testing period, respondents were given a short explanation of the purpose of the research and were assured as to the intended usage of the data. Each emplanation was uniform in both purpose and scope. Assurances of strict anonymity in the handling of the data were given. Respondents at the first and second testing periods were requested not to discuss the purpose or content of the questionnaires in any way until the following day.

Administration of the questionnaires permitted the researcher to employ one more procedure in a further effort to minimize the possible adverse effects of the response sets of superiors and subordinates. One half of the questionnaires completed by superiors (Form A) and subordinates (Form C) were assembled with Part I as the initial part. The second half were assembled with Part IV as the initial part. Thus, one half of the respondents in each of these two samples completed Part I as the first part of the questionnaire and Part IV as the last part.

For the other half of the respondents, in these two samples, the procedure was reversed.

Scoring the Questionnaires

On all the variations of the questionnaires the optional responses to the items were weighted from zero to four. As can be noted by referring to the appendices, high frequency on certain items received a weight of 4; on other items high frequency received a weight of zero. For example, if "Always" reflected a high degree of consideration it was weighted 4; if it indicated a low degree of consideration it was weighted zero. The scores received on each item included in the consideration dimension are added together for an individual's total consideration score. Each individual received both a consideration score and a structure score. Each respondent in the sample of superiors and subordinates received two consideration scores and two structure scores: a consideration score and a structure score for both military and civilian supervisors.

It will be recalled that in the SBDQ, which was used in Form A and C, there are twenty-eight items scored for consideration. In the LOQ, which was used in Form B, there are only twenty items scored for the consideration dimension. Since the hypotheses required comparisons of the leadership attitudes of supervisors with the perceptions which superiors and subordinates had of the leadership role of supervisors, it was necessary to adjust the data in order to make them comparable. The adjustment involved, first, determining the consideration score for each supervisor. This score was divided by twenty, the total number of items scored for the dimension, to derive a mean item score. This mean

value was then multiplied by eight, the difference in the number of consideration items in the two instruments, and the resulting value was then added to the supervisor's consideration score. All references in the data to the leadership attitudes of supervisors will reflect this adjustment in consideration scores.

Questionnaires were hand scored and were verified to minimize scorer bias and errors.

Data Processing

Once the questionnaires had been scored the data were then prepared for computer processing. The data were processed for calculation of averages, sums, variances, standard deviations and the sums of the squared deviations.[24]

The data were recorded in a manner conducive to the use of parametric tests: specifically, the "F" or variance ratio for determining the significance of the difference between variances and the "t" test for determining the significance of the difference between means. These statistical tests and the computational methods will be more fully explained in the following chapter.

IV. SOURCES OF THE DATA

The General Population

The work force of the research site has been described in terms of its officer, airman, and civilian make-up. This total population was then divided into two categories: with and without combat responsibilities. From the latter category eight sub-populations were

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[24] See Appendices L, M, N, and O.

identified. Criteria employed in stratifying these sub-populations included (1) personnel components, (2) personnel sub-components (military and civilian), (3) superiors with both military and civilian supervisors working for them, and (4) subordinates working for both military and civilian supervisors. From these sub-populations samples were selected as follows:

Component Sample	Sub-Component Samples	Variable Measured
Superiors (N = 100)	50 military superiors	Perceptions of leadership role of military and civilian supervisors.
	50 civilian superiors	Perceptions of leadership role of military and civilian supervisors.
Supervisors (N = 100)	50 military supervisors	Assessment of leadership attitudes.
	50 civilian supervisors	Assessment of leadership attitudes.
Subordinates (N = 100)	25 military and 25 civilian subordinates working for military supervisors	Perceptions of leadership role of military and civilian supervisors.
	25 civilian and 25 military subordinates working for civilian supervisors	Perceptions of leadership role of military and civilian supervisors.

Each of the persons selected in the sample of superiors currently had both military and civilian supervisors working under him. This requirement was not imposed upon the sample of supervisors since it was not relevant to the hypotheses to be tested. The composition of the sample of subordinates was imposed in order to guarantee selection of persons who had worked for both military and civilian supervisors.

The focus of this research is the first-line supervisor. Within large organizations first-line supervisors are found at all organizational levels. Whether in a squadron or a headquarters staff division, the first-line supervisor was defined in large measure by referring to a necessary characteristic of the persons under his supervision: subordinates are persons having no supervisory responsibility. Thus, positions of first-line supervision could be absolutely identified only after adequate identification of positions of subordinates were made. Positions of superiors, the second-line supervisor, were identified in a similar manner.

The researcher was furnished the following letter of introduction and authorization signed by the base commander.

To All Units

1. This letter will introduce Charles R. Holloman, attached to this Wing for approximately 45 days.

2. Mr. Holloman has authority to conduct research involving both military and civilian personnel assigned to this Wing. All effort will be made by Mr. Holloman to conduct his research with a minimum of interference with normal duties.

3. It is requested that all personnel extend the maximum cooperation and courtesy.

Signature of the commander

During the period that the researcher spend in getting acquainted with the various organizational elements at the research site, discussions were held with unit commanders in an effort to reach agreement on the meaning of superior, supervisor, and subordinate.

The various samples to be tested were selected from organizational elements not directly engaged in combat oriented operations. Examples of these organizational elements included such line elements as food service and base maintenance. At staff level, representative staff divisions included personnel, comptroller, and administration.

Selection of Samples

In the process of identifying and selecting respondents in each of the personnel components and sub-components, the assistance of the Military Personnel Officer and the Civilian Personnel Officer were solicited. Both of these officers (the Civilian Personnel Officer is a civilian) are a part of the office of the Deputy Chief of Staff, Personnel. The assistance offered by them and the many suggestions they offered contributed significantly to the ease of identifying and selecting the three samples.

First of all, it was agreed that unit commanders and staff heads would be asked to identify all persons, both military and civilian, within their organizations who met the criteria of each of the eight sub-populations from which samples were to be selected. A written request was initiated from the office of the Deputy Chief of Staff, Personnel, addressed to all unit commanders and staff agency heads requesting them to furnish rosters of persons in each of these eight categories. This request was hand-carried by the investigator to each addressee. In meetings with the unit commander or staff agency head, discussions were undertaken to insure complete agreement on the criteria which had been established. Opportunities were offered to these persons to ask questions.

A period of ten days was allowed for the completion and return of these personnel rosters. When all of the requested rosters had been returned, master rosters of the persons in the eight sub-populations were prepared. From these master rosters persons to complete the respective questionnaires were randomly selected. Rosters originally furnished by unit commanders and staff agency heads were returned properly annotated as to particular persons chosen to complete the respective questionnaires. Attached to the rosters was a request to permit those persons to attend one of the three scheduled testing periods, taking care that each category was equally divided between the three testing periods. A reminder was made of the requirement that all persons selected to complete the questionnaires must be willing to do so. Background characteristics of the selected samples of superiors, supervisors, and subordinates are reflected in Tables 6, 7, and 8, respectively.

In order to insure having the required number of respondents in each of the various categories, the required number in each of the respective samples was increased by ten per cent. This increase was deemed sufficient to make up for any persons not able to attend or who did not wish to complete the questionnaires.

Upon completion of the administration of the questionnaires it was found that the number of questionnaires required in each of the respective categories was exceeded. Before discarding any of the completed questionnaires, they were individually scrutinized by the investigator to insure that all items had been completed. In only four or five cases were incomplete items found. In these instances, if the incomplete item was found in either Part I or Part IV, the average score

Table 6

Background Characteristics of Sample of One Hundred Superiors

Characteristic	Military (N = 50)		Civilian (N = 50)	
(1)	(2)	(3)	(4)	(5)
	Mean	S.D.	Mean	S.D.
1. Age	39.50	8.23	45.88	6.42
2. Education (years)	13.22	2.05	12.88	1.85
3. Years active military duty	16.96	7.19		
4. Years worked for the Air Force			15.32	6.81
5. Years worked as a supervisor	12.52	5.94	14.70	6.01
6. Number of persons directly supervised	5.64	2.61	5.60	2.39
7. Number military persons directly supervised	3.48	1.90	2.68	1.61
8. Number civilian persons directly supervised	2.16	1.67	2.92	1.89
	N	%	N	%
9. Sex: Male	49.00	98.00	45.00	90.00
Female	1.00	2.00	5.00	10.00
Totals	50.00	100.00	50.00	100.00
10. Years assigned to or worked at this base				
A. Less than six months	5.00	10.00	0.	0.
B. Six months to one year	8.00	16.00	1.00	2.00
C. More than one year	27.00	54.00	4.00	8.00
D. More than three years	9.00	18.00	10.00	20.00
E. More than six years	1.00	2.00	35.00	70.00
Totals	50.00	100.00	50.00	100.00

Table 7

Background Chara teristics of Sample of One Hundred Supervisors

Characteristic	Military (N = 50)		Civilian (N = 50)	
(1)	(2)	(3)	(4)	(5)
	Mean	S.D.	Mean	S.D.
1. Age	35.60	6.17	45.24	7.76
2. Education (years)	12.22	1.67	12.56	1.54
3. Years active military duty	14.46	4.97		
4. Years worked for the Air Force			13.64	5.67
5. Years worked as a supervisor	9.20	4.82	9.54	6.90
6. Number persons directly supervised	6.48	4.30	7.26	5.16
7. Number military persons directly supervised				
8. Number civilian persons directly supervised				
	N	%	N	%
9. Sex: Male	49.00	98.00	37.00	74.00
Female	1.00	2.00	13.00	26.00
Totals	50.00	100.00	50.00	100.00
10. Years assigned to or worked at this base				
A. Less than six months	3.00	6.00	1.00	2.00
B. Six months to one year	8.00	16.00	1.00	2.00
C. More than one year	25.00	50.00	5.00	10.00
D. More than three years	12.00	24.00	4.00	8.00
E. More than six years	2.00	4.00	39.00	78.00
Totals	50.00	100.00	50.00	100.00

Table 8

Background Characteristics of Sample of One Hundred Subordinates

	Working for military supervisor (N = 25)		Working for civilian supervisor (N = 25)		Working for military supervisor (N = 25)		Working for civilian supervisor (N = 25)	
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Mean	S.D.	Mean	S.D.	Mean	S.D.	Mean	S.D.
1. Age	24.64	4.67	24.12	7.03	40.76	10.31	42.96	9.82
2. Education (years)	12.08	1.12	12.04	1.62	12.68	1.35	11.32	1.73
3. Years active military duty	5.80	4.80	5.00	5.52				
4. Years worked for Air Force					9.40	6.66	10.20	4.79
	N	%	N	%	N	%	N	%
5. Sex: Male	24.00	96.00	22.00	88.00	18.00	72.00	12.00	48.00
Female	1.00	4.00	3.00	12.00	7.00	28.00	13.00	52.00
Totals	25.00	100.00	25.00	100.00	25.00	100.00	25.00	100.00
6. Years assigned to or worked at this base								
A. Less than six months	2.00	8.00	5.00	20.00	0.	0.	0.	0.
B. Six months to one year	3.00	12.00	1.00	4.00	1.00	4.00	0.	0.
C. More than one year	15.00	60.00	13.00	52.00	5.00	20.00	4.00	16.00
D. More than three years	5.00	20.00	5.00	20.00	7.00	28.00	3.00	12.00
E. More than six years	0.	0.	1.00	4.00	12.00	48.00	18.00	72.00
Totals	25.00	100.00	25.00	100.00	25.00	100.00	25.00	100.00

of the items completed in the dimension of which the omitted item was a part was determined and the omitted item was given that value. If the omitted item was on Part II, the background characteristics data sheet, the questionnaire was discarded. If an omitted item was found on Part III (Form A and Form B only), it was disregarded.

After this examination was completed there was still an excess of questionnaires in each of the respective categories. Questionnaires were grouped according to category and questionnaires were randomly withdrawn to bring the samples down to the required number.

V. SUMMARY

The purpose of this chapter has been to give a detailed account of the research design and the methods employed to obtain the data. This study has been defined as an exploratory survey of possible variations in the perceptions which superiors and subordinates have of the leadership role of military and civilian supervisors in a military setting. Perceptions were measured in the form of expected leadership behavior. Behavior was measured in terms of two essentially independent dimensions: consideration and structure. Quantitative descriptions of these variables were obtained through use of questionnaires developed by the Personnel Research Board of The Ohio State University. A pre-test of the questionnaires was conducted, and a standard plan of procedure was followed in selection of respondents and administration of the questionnaires. The data obtained were scored in a manner to provide quantitative descriptions of the variables being measured.

The results of this study are reported in Chapter IV.

CHAPTER IV

STATISTICAL ANALYSIS AND FINDINGS

In the previous chapter the emphasis was on the methodology of obtaining quantitative descriptions of the relevant variables through testing randomly selected samples from stratified populations. It is obvious, however, that the mere accumulation of data does not automatically provide a test of the stated hypotheses. Rather, the data provide the means for testing the hypotheses. The data have to be analyzed in some orderly fashion so as to provide a basis for confirmation or disconfirmation of the hypotheses. This chapter describes the ways in which the data were analyzed and the findings derived from the analysis.

I. DATA ANALYSIS

This study was designed to test the variation in perceptions which superiors and subordinates have of the leadership role of military and civilian supervisors in an Air Force organization. A secondary purpose of the study was to determine whether the leadership attitudes of military and civilian supervisors in an Air Force organization tend to be superior-oriented or subordinate-oriented. Eight specific hypotheses were formulated with respect to the research objectives. For purposes of statistical testing of these hypotheses they were restated in null terms. Use of the null hypothesis, i.e., no population difference, is considered customary in research of this kind. As used in the present research, the null hypothesis becomes the statement of the research issue which must be

evaluated by an appropriate test of significance.[1] If the null hypothesis can be rejected at a sufficiently high level (usually at the .05 or .01 levels), it may be inferred that there is support for the basic or alternative hypothesis Eventually, in this manner, sufficient evidence may be collected to prove the basic hypothesis.[2]

One of the more useful purposes of the formulation of hypotheses is that they provide a convenient framework or outline of the researcher's thinking. He is thus permitted to declare his insights or intents at the beginning. In a like manner, evaluation of the results at the conclusion is facilitated. Hypotheses do not, however, limit the area of critical inquiry. Rather, they provide a convenient and operational procedure for stating ideas which can then be tested. The hypotheses stated in Chapter I are specific in that they pertain only to the variables being studied.

The null hypotheses are stated as contradictions of the basic hypotheses. If, for example, the basic hypothesis predicts that the consideration score of superiors is higher than the consideration score of subordinates the null hypothesis would be stated in contradictory terms to the effect that the consideration score of superiors was equal to or less than the consideration score of subordinates. Since the basic

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[1] For a comprehensive discussion of the use of null and alternative hypotheses in statistical decision-making see W. Allen Wallis and H. V. Roberts, Statistics, A New Approach (Glencoe, Illinois: The Free Press, 1956), Chapter 12.

[2] The word "prove" is used in the sense of fiducial probability rather than absolute demonstration. For a discussion of the standards required for "proof," see James E. Wert, C. O. Neidt, and J. S. Ahmann, Statistical Methods In Educational and Psychological Research (New York: Appleton-Century Crofts, Inc., 1954), pp. 123-129.

hypotheses relate to both the consideration and structure dimensions of leadership behavior, the null hypotheses are sub-divided so that components and sub-components can be compared with respect to each of these two dimensions. This procedure results in testing two or more null hypotheses for each basic hypothesis.

The probability level of rejecting a true null hypothesis was set at the .05 level of significance for all tests. Use of the .05 level means that, in the long run, a true null hypothesis would be rejected no more than five times in one hundred. Since differences were predicted in one direction only, one-tailed tests of significance were applied.

Since attention was given primarily to testing differences between means, the "t" test for differences between means is used. Appropriate statistical models of the "t" test were selected for both independent and paired observations.[3]

The "t" test utilized to test independent observations assumes normality in the distribution of the variables in the populations from which the samples were drawn. It also assumes that these populations have equal variances. The assumption of a single homogeneous population is usually made unless there is evidence that such a population does not exist. Wert, Neidt, and Ahmann have noted an increasing consensus that little violence accompanies the use of such statistical models unless

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[3]Statistical tests employed in this study and the references for their use are described in Appendix K.

the difference in variances is extreme.[4] They argue, for example, that even large differences in the variance ratio have little effect upon the resulting "t" values.[5] As evidence for their argument, they provide an example using samples of twenty each. They compute values of "t" using, first, the formula described above with pooled variances, and second, by using an approximate method suggested for use where the variances are unequal.[6] The resulting "t" values differed only in the third decimal place. The most decisive difference between the two methods appears to be in the number of degrees of freedom used to enter a table of "t" values. It can be noted, by referring to a table of "t" values, that as the size of the sample increases the discrepancy between the "t" values decreases. In the present study, with sub-component samples of fifty and component samples of one hundred, the differences in "t" values are considered inconsequential, regardless of the use of a pooled variance method or a method where variances are separately considered.

The position taken by Wert, Neidt, and Ahmann has received recent support from Boneau who proposes that ". . . the ordinary 't' and 'F' tests are nearly immune to violations of assumption or can easily be

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[4] James E. Wert, C. O. Neidt, and J. S. Ahmann, Statistical Methods in Educational and Psychological Research (New York: Appleton-Century Crofts, Inc., 1954), p. 136. A number of reputable statistical texts were consulted, in addition to the source cited, for an opinion on how large a difference between variances had to be before it was considered to be "extreme." Surprisingly, the investigator was unable to find such an opinion.

[5] Ibid.

[6] Although not referred to as such by Wert, Neidt, and Ahmann, the model they use where the variances are unequal is usually referred to as the Cochran and Cox technique. It is described in William G. Cochran and G. M. Cox, Experimental Designs (New York: John Wiley & Sons, 1950), Chapter 3.

made so if precautions are taken."[7] The arguments here advanced suggest that homogeneity of variance plays only a small part in a satisfactory test of the difference between means. Thus it appears that the assumption of homogeneous variance, necessary by theory to satisfy the application of the statistical model, may safely be waived except in the most extreme cases.

All tests of the significance of differences between means were computer processed, assuming homogeneous variance.[8] Where the assumption of equality of variances was found to be untenable, values of "t" were recomputed utilizing the separate group variance method employed by Wert, Neidt, and Ahmann.[9] If the recomputed values of "t" differed from the original computations at the second decimal place the recomputed values are reported.

The "t" test was also used to test the significance of the difference between differences in Hypotheses VII and VIII.

The primary concern of Hypothesis II was with the significance of the difference between variances for paired observations. To test this significance, the "F" or variance ratio was used.[10] In using the "F" ratio, in the absence of logical considerations for doing otherwise, it

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[7] Alan C. Boneau, "The Effects of Violations of Assumptions Underlying the "t" Test," Psychological Bulletin 57:49-64, 1960, p. 50.

[8] See Appendices P, Q, R, S, and T.

[9] See Wert, Neidt, and Ahmann, op. cit., p. 130 for a discussion of the use of this statistical model. The formula is described in Appendix K.

[10] The formula and the reference for its use are described in Appendix K. For a discussion of the use of this test of the differences between variances see Wert, Neidt, and Ahmann, op. cit., pp. 133-135.

is customary to place the larger of the two variances being compared in the numerator and the smaller in the denominator. As used in testing Hypothesis II logical considerations were present. Since a priori speculation predicted that one of the variances would be smaller, the predicted larger variance was placed in the numerator with the predicted smaller variance in the denominator. With a difference in the predicted direction, a ratio larger than unity was obtained. With the difference in the opposite direction, however, ratios less than unity were obtained.

As mentioned above, all statistical computations were computer processed. Certain calculations which did not lend themselves to computer processing were made using a desk calculator. All calculations were self checked.

Tables 6, 7, and 8 present pertinent background characteristics of the various samples actually tested in this research study. It was deemed desirable, in consideration of the theoretical frame of reference developed for this study, to determine whether there were any significant relationships between these background characteristics and the subject's resulting consideration and structure scores.[11] Pearson product-moment correlation coefficients were used to determine the degree of association between the variables. It should be noted that the Pearson "r" assumes interval scales in the variables being related. This requirement is not met in the variable designated "years assigned to or working at the research site." Since this requirement is not met with respect to this particular variable the reader is cautioned against too strict an interpretation of the resulting correlations.

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[11] See Appendices D, E, F, G, and H.

An attempt was made to relate sex of the respondents to their consideration and structure scores. This effort was abandoned for the reason that the number of females was not sufficiently large in all of the samples. In one sample of fifty military superiors there was one female. In two other samples of size fifty there were only two females. Ideally, for statistical purposes, it would have been better to exclude females from the samples. Such a procedure, however, would not have been realistic since the purpose of this research was to study the situation as it actually exists.

It will be noted that only four of the many correlations are significant at the .05 level. It was anticipated that there would have occurred a larger number of significant relationships. The only consistent relationship is between age of civilian superiors and their consideration scores. Both in their perception of the personal role of the military supervisor ($r = .28$; $p \leq .05$) and in their perception of the personal role of the civilian supervisor ($r = .30$; $p \leq .05$) significant relationships were found. With this single exception, there appears to be little relationship between these background factors and consideration and structure scores. Subsequent analytical discussion will include references to the significant correlations where relevant.

II. HYPOTHESES TESTING

This section will present the results of the tests of the hypotheses. The general hypothesis of this study, it will be remembered, postulated that there are differentiated perceptions of the leadership role of the supervisor both between and within the two personnel components with which the supervisor must interact. Eight specific

hypotheses were formulated about the nature of these perceptions and the orientations of the leadership attitudes of supervisors. For purposes of statistical testing of these hypotheses, they were restated in null or contradictory terms. Since each basic hypothesis compares the perceptions of two or more components or subcomponents in terms of both consideration and structure, each basic hypothesis is restated in terms of two or more null hypotheses. In total, there are twenty-two null hypotheses. Each of them was tested with an appropriate test of significance. The results of the tests will be presented by extracting pertinent data from the appendices.

Hypothesis I

The leadership role of the military supervisor will be perceived by both superiors and subordinates to be lower in consideration and higher in structure than the leadership role of the civilian supervisor.

Null Hypotheses

I-A. With respect to consideration, the perceptions which superiors have of the leadership role of the military supervisor will be no lower than their perceptions of the leadership role of the civilian supervisor.

I-B. With respect to consideration, the perceptions which subordinates have of the leadership role of the military supervisor will be no lower than their perceptions of the leadership role of the civilian supervisor.

I-C. With respect to structure, the perceptions which superiors have of the leadership role of the military supervisor will be no higher than their perceptions of the leadership role of the civilian supervisor.

I-D. With respect to structure, the perceptions which subordinates have of the leadership role of the military supervisor will be no higher than their perceptions of the leadership role of the civilian supervisor.

Presentation of Data. Hypothesis I was concerned with the perceptions which superiors and subordinates have of the personal leadership role of military and civilian supervisors. It predicted that both superiors and subordinates would perceive the military supervisor to be lower in consideration and higher in structure than the civilian supervisor. There are three relevant aspects to the test of significance of this hypothesis. First, it was predicted that there would be a difference in the perceptions which superiors and subordinates have of military and civilian supervisors. Second, the direction of this difference was predicted. Third, is the resulting difference greater than that which would be expected due to chance or, to put it differently, does the resulting difference differ significantly from zero difference.

Hypothesis I was tested using the "t" test for paired observations. Data presented below are extracted from Appendices L, N, and R. Inasmuch as the direction of the results had been predicted, one-tailed tests of significance were performed. With 198 degrees of freedom, the tabled values of "t" associated with infinity were used. If the computation resulted in a "t" value of 1.645 or higher, the null hypothesis was rejected at the .05 level of significance. Where it was possible to reject the null hypothesis at a higher level of confidence the higher level is indicated.

The data in Table 9 reflect the results of testing the first hypothesis.

Table 9

Results of Testing Hypothesis I

Null Hypotheses	Variable (Code)	Means	Observed t	Level of Significance
	CONSIDERATION			
I-A	Superiors' Perceptions of:			
	Mil supervisor (1.3)	86.92	9.56	.0005
	Civ supervisor (2.3)	87.40		
I-B	Subordinates' Perceptions of:			
	Mil supervisor (10.3)	74.70	-7.82	*
	Civ supervisor (11.3)	74.58		
	STRUCTURE			
I-C	Superiors' Perceptions of:			
	Mil supervisor (4.3)	53.79	10.89	.0005
	Civ supervisor (5.3)	52.40		
I-D	Subordinates' Perceptions of:			
	Mil supervisor (13.3)	45.67	10.05	.0005
	Civ supervisor (14.3)	44.41		

*Although there is a difference between these two means, and it would appear that this difference is statistically significant, it is not in the predicted direction. With the one-tailed test of significance used here the null hypothesis could not be rejected.

Interpretation of Findings. The data in Table 9 offer partial support for the basic hypothesis. Null Hypotheses I-A, I-C and I-D were rejected thus confirming three of the four predictions made in the basic hypothesis. Failure to reject Null Hypothesis I-B means, on the basis of the data examined, that subordinates do not perceive the leadership role of the military supervisor to be lower in consideration than the leadership role of the civilian supervisor.

The data are interpreted as meaning that superiors perceive the leadership role of the military supervisor to be lower in consideration and higher in structure than the leadership role of the civilian

supervisor. This interpretation supports the prediction of the basic hypothesis. With respect to structure, the expectations of subordinates tended to correspond with the expectations of superiors, i.e., subordinates expected the military supervisor to be higher in structure than the civilian supervisor. This result was expected in terms of the basic hypothesis. However, subordinates did not agree with superiors in their expectations of the leadership role of military and civilian supervisors with respect to consideration. While superiors expected the civilian supervisor to be higher in consideration, subordinates expected the military supervisor to be higher. This unexpected finding will be discussed in greater length in the following chapter.

Hypothesis II

Superiors and subordinates will reflect greater agreement in their perceptions of the leadership role of the military supervisor than in their perceptions of the leadership role of the civilian supervisor.

Null Hypotheses

II-A. With respect to consideration, superiors will reflect no greater agreement in their perceptions of the leadership role of the military supervisor than in their perceptions of the leadership role of the civilian supervisor.

II-B. With respect to consideration, subordinates will reflect no greater agreement in their perceptions of the leadership role of the military supervisor than in their perceptions of the leadership role of the civilian supervisor.

II-C. With respect to structure, superiors will reflect no greater agreement in their perceptions of the leadership role of the military

supervisor than in their perceptions of the leadership role of the civilian supervisor.

II-D. With respect to structure, subordinates will reflect no greater agreement in their perceptions of the leadership role of the military supervisor than in their perceptions of the leadership role of the civilian supervisor.

Presentation of Data. Hypothesis II was tested using the "f" or variance ratio for determining the significance of the difference between variances. Variance, a measure of variability in the scores, is here taken as a measure of agreement in the perceptions of the various components as they view the leadership role of military and civilian supervisor. High variance is equated to low agreement; low variance to high agreement.

In using the variance ratio, the predicted larger variance was placed in the numerator and the predicted smaller variance in the denominator. Values of "F" were then derived through the process of division. Computations were made by desk calculator employing data contained in Appendices L and N. With the data in the predicted direction, "F" values larger than unity were obtained. When the data was in the opposite direction, "F" values less than unity were obtained. A table of "F" was then consulted with ninety-nine degrees of freedom in both the numerator and the denominator, and a one-tailed test was used to determine the significance of the resulting "F" values. Table 10 reflects the results of testing Hypothesis II.

Table 10

Results of Testing Hypothesis II

Null Hypotheses	Variable (Code)	Variances	Observed F	Level of Significance
	CONSIDERATION			
II-A	Superiors' Perceptions of:			
	Mil supervisor (1.3)	77.59	1.06	*
	Civ supervisor (2.3)	82.28		
II-B	Subordinates' Perceptions of:			
	Mil supervisor (10.3)	287.53	.90	
	Civ supervisor (11.3)	257.40		
	STRUCTURE			
II-C	Superiors' Perceptions of:			
	Mil supervisor (4.3)	56.98	1.00	*
	Civ supervisor (5.3)	57.17		
II-D	Subordinates' Perceptions of:			
	Mil supervisor (13.3)	77.03	1.10	*
	Civ supervisor (14.3)	84.97		

*In the predicted direction.

Interpretation of Findings. The data in Table 10 fail to support the predictions of the basic hypothesis. Although in three instances there was a difference in the predicted direction, these differences failed of significance. An "F" value of 1.39 was required to indicate significance at the .05 level of confidence.

The theory of the basic hypothesis was that the role of the military supervisor is more clearly defined and established than the role of the civilian supervisor. There also appear to be more numerous and effective procedures for defining and transmitting the role of the military supervisor than for the civilian supervisor. The data can be interpreted as meaning that, within components, there is an unanimity

of understanding of the respective leadership roles of the military and civilian supervisor. This was true for both superiors and subordinates. It was noted, however, that for both consideration and structure superiors reflected greater agreement in their perceptions than did subordinates.

While no significant "F" values were found between sub-components, a between-component comparison of variances resulted in significant values of "F". Table 11 reflects the results of a comparison between components.

Table 11

Tests of Significance of the Difference Between Variances: "F" Test of Hypothesis that Variances are Equal

Variable (Code)	Variances	Observed F	Level of Significance
CONSIDERATION			
Perceptions of mil supervisor by:			
Superiors (1.3)	77.59	3.71	.02
Subordinates (10.3)	287.53		
Perceptions of civ supervisor by:			
Superiors (2.3)	82.28	3.13	.02
Subordinates (11.3)	257.40		
STRUCTURE			
Perceptions of mil supervisor by:			
Superiors (4.3)	56.98	1.35	
Subordinates (13.3)	77.03		
Perceptions of civ supervisor by:			
Superiors (5.3)	57.15	1.49	.10
Subordinates (14.3)	84.97		

In computing the significance of the differences between variances in Table 11 the larger variance was placed in the numerator. For this reason, a two-tailed test of significance was used and the .05 and the .01 levels of significance were interpreted as being .10 and .02,

respectively. In three of four comparisons, significant "F" values were found. In these three instances there was evidence that superiors are significantly more uniform than subordinates in their perceptions of the leadership role of military and civilian supervisors. In only one instance--superiors and subordinates perceptions of the military supervisor with respect to structure--was there no significant difference in the variances.

This finding can logically be attributed to the differences in the amount of experience each of the components have had in the Air Force.[12] For superiors, there has been a longer period of time in which to get acquainted with the role of the supervisor. With increased experience in the Air Force, there appears to be an attitudinal regression to greater uniformity. It can be reasonably assumed that most persons in the sample of superiors have progressed to their present positions through positions similar to those included in the sample of supervisors. Thus the sample of superiors have had personal experience in identifying with the role of the supervisor. Without this experience, subordinates evidence greater disparity in their perceptions of the leadership role of military and civilian supervisors.

Hypothesis III

Military superiors will perceive the leadership role of the supervisor to be lower in consideration and higher in structure than will civilian superiors.

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[12]See Tables 6, 7, and 8.

Null Hypotheses

III-A. With respect to consideration, the perceptions which military superiors have of the leadership role of the supervisor will be no lower than the perceptions of civilian superiors.

III-B. With respect to structure, the perceptions which military superiors have of the leadership role of the supervisor will be no higher than the perceptions of civilian superiors.

Presentation of Data. This hypothesis is concerned with the perceptions which military and civilian superiors have of the social role of the supervisor. The "t" test for independent observations with ninety-eight degrees of freedom was used to test the significance of the difference between mean scores. Data used in these tests are contained in Appendices L, P, and Q.

Table 12

Results of Testing Hypothesis III

Hypotheses	Variable (Code)	Means	Observed t	Level of Significance
	CONSIDERATION			
III-A	Perceptions of supervisor role by:			
	Mil superiors (3.1)	86.91	0.29	*
	Civ superiors (3.2)	87.41		
	STRUCTURE			
III-B	Perceptions of supervisor role by:			
	Mil superiors (6.1)	53.51	0.58	*
	Civ superiors (6.2)	52.68		

*In the predicted direction.

Interpretation of Findings. The data reflected in Table 12 offer no evidence upon which to reject the null hypotheses. Although there was a difference in the predicted direction between military and civilian superiors, this difference was not found to be significant.

The data can be interpreted as meaning that superiors, both military and civilian, tend to agree in their perceptions of the leadership role of the supervisor.

Hypothesis IV

Military superiors will perceive the leadership role of the supervisor to be higher in consideration and higher in structure than will military subordinates.

Null Hypotheses

IV-A. With respect to consideration, the perceptions which military superiors have of the leadership role of the supervisor will be no higher than the perceptions of military subordinates.

IV-B. With respect to structure, the perceptions which military superiors have of the leadership role of the supervisor will be no higher than the perceptions of military subordinates.

Presentation of Data. In the previous hypothesis the perceptions of military superiors were compared to the perceptions of civilian superiors. In the present hypothesis the comparison is between military superiors and military subordinates. Again, the test of significance of the difference between mean scores was the "t" test for independent samples. A one-tailed test with ninety-eight degrees of freedom was used. Data used in these test are contained in Appendices L, N, P, and Q.

Table 13

Results of Testing Hypothesis IV

Null Hypotheses	Variable	Mean Scores	Observed t	Level of Rejection
	CONSIDERATION			
IV-A	Perceptions of supervisor role by:			
	Mil superiors (3.1)	86.91	5.18	.0005
	Mil subordinates (12.1)	73.21		
	STRUCTURE			
IV-B	Perceptions of supervisor role by:			
	Mil superiors (6.1)	53.51	5.89	.0005
	Mil subordinates (15.1)	44.63		

Interpretation of Findings. Rejection of the null hypotheses at the .0005 level of confidence provides support for the basic hypothesis that, with increased experience in the Air Force, military superiors perceive the leadership role of the supervisor to be higher in both consideration and structure than do military subordinates. While no differences were found when the expectations of military superiors were compared with civilian superiors highly significant differences were found when military superiors were compared with military subordinates.

Further discussion of these findings will be delayed until the data for Hypothesis V is examined. The following hypothesis compares civilian superiors with civilian subordinates.

Hypothesis V

Civilian superiors will perceive the leadership role of the supervisor to be higher in consideration and higher in structure than will civilian subordinates.

Null Hypotheses

V-A. With respect to consideration, the perceptions which civilian superiors have of the leadership role of the supervisor will be no higher than the perceptions of civilian subordinates.

V-B. With respect to structure, the perceptions which civilian superiors have of the leadership role of the supervisor will be no higher than the perceptions of civilian subordinates.

Presentation of Data. The methodology employed in testing the present hypothesis is identical to that of the previous hypothesis. A one-tailed test with ninety-eight degrees of freedom was used. Data used in these tests are contained in Appendices L, N, P, and Q. The hypothesis poses a test of the theory that continued experience working for the Air Force tends to make the civilian superior score higher in both consideration and structure.

Table 14

Results of Testing Hypothesis V

Null Hypotheses	Variable (Code)	Mean Scores	Observed t	Level of Rejection
	CONSIDERATION			
V-A	Perceptions of supervisor role by:			
	Civ superiors (3.2)	87.41	5.14	.0005
	Civ subordinates (12.2)	76.07		
	STRUCTURE			
V-B	Perceptions of supervisor role by:			
	Civ superiors (6.2)	52.68	4.75	.0005
	Civ subordinates (15.2)	45.45		

Interpretation of Findings. The data reveal support for the basic hypothesis. Rejection of the null hypotheses at the .0005 level of confidence parallels the findings of the previous hypothesis. Viewing the findings in the present case, together with those of the previous hypothesis, suggests strong support for the theory that continued experience in the Air Force not only results in higher structure scores but also in higher consideration scores.[13]

The following hypothesis provides for an intra-component comparison of the perceptions which military and civilian subordinates have of the leadership role of the supervisor.

Hypothesis VI

Military subordinates will perceive the leadership role of the supervisor to be lower in consideration and higher in structure than will civilian subordinates.

Null Hypotheses

VI-A. With respect to consideration, the perceptions which military subordinates have of the leadership role of the supervisor will be no lower than the perceptions of civilian subordinates.

VI-B. With respect to structure, the perceptions which military subordinates have of the leadership role of the supervisor will be no higher than the perceptions of civilian subordinates.

Presentation of Data. Again, the methodology employed in determining the significance of differences between means was the "t" test for

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[13] Almost without exception superiors have more experience in or working for the Air Force than do subordinates. See Tables 6 and 8.

independent samples. A one-tailed test of significance with ninety-eight degrees of freedom was used. Data used in these tests are contained in Appendices N, P, and Q.

Table 15

Results of Testing Hypothesis VI

Null Hypotheses	Variable (Code)	Mean Scores	Observed t	Level of Rejection
	CONSIDERATION			
VI-A	Perceptions of supervisor role by:			
	Mil subordinates (12.1)	73.21	.96	*
	Civ subordinates (12.2)	76.07		
	STRUCTURE			
VI-B	Perceptions of supervisor role by:			
	Mil subordinates (15.1)	44.63	-.51	
	Civ subordinates (15.2)	45.45		

*In the predicted direction.

Interpretation of Findings. Examination of the data provide no evidence upon which to reject the null hypotheses. With respect to consideration, there was a difference between military and civilian subordinates in the predicted direction, although this difference was not significant. With respect to structure, there was a difference in the opposite direction.

These findings are consistent with the results of testing Hypothesis III. In testing Hypothesis III, no differences were found between military and civilian superiors in their perceptions of the leadership role of the supervisor. In the present hypothesis, no differences were found between military and civilian subordinates in their perceptions of the leadership role of the supervisor.

The findings resulting from testing Hypothesis III through VI can be summarized by noting that the findings tended to support the general observations. Within components, no significant differences were found in the perceptions which the sub-components have of the social role of the supervisor. Hypothesis III predicted that military superiors would perceive the leadership role of the supervisor to be lower in consideration and higher in structure than would civilian superiors. Although there were differences in the predicted direction with respect to both consideration and structure, these differences were not significant. Hypothesis VI predicted that military subordinates would perceive the leadership role of the supervisor to be lower in consideration and higher in structure than would civilian subordinates. Examination of the data failed to provide evidence upon which the null hypothesis could be rejected thus denying support to the basic hypothesis.

Comparisons between components consistently resulted in findings of significant differences. In Hypothesis IV, which provided for a comparison of the perceptions of military superiors and military subordinates, significant differences were found with respect to both consideration and structure. Hypothesis V provided for a similar test of the differences between the perceptions of civilian superiors and civilian subordinates. In this instance, too, significant differences were found with respect to both consideration and structure.

By way of summary, it can be stated that within components there are no significant differences between the perceptions which military and civilian persons have of the leadership role of the supervisor. This is true for both superiors and subordinates. Between components,

however, it was found that both military and civilian superiors differed significantly from military and civilian subordinates in their perceptions of the leadership role of the supervisor. Superiors perceived the role of the supervisor to be higher in consideration and higher in structure than did subordinates.

Hypothesis VII

The leadership attitudes of both military and civilian supervisors will more nearly conform with the expectations of superiors than with the expectations of subordinates.

Null Hypotheses

VII-A. With respect to consideration, conformance of the leadership attitudes of military supervisors with the expectations of superiors will be no greater than their conformance with the expectations of subordinates.

VII-B. With respect to consideration, conformance of the leadership attitudes of civilian supervisors with the expectations of superiors will be no greater than their conformance with the expectations of subordinates.

VII-C. With respect to structure, conformance of the leadership attitudes of military supervisors with the exceptions of superiors will be no greater than their conformance with the expectations of subordinates.

VII-D. With respect to structure, the conformance of the leadership attitudes of civilian supervisors with the expectations of superiors will be no greater than their conformance with the expectations of subordinates.

Presentation of Data. The procedure employed in testing Hypothesis VII can best be understood by forming a mental picture of three scores on a plane. The two outside scores represent the expectations of superiors

and subordinates. The inside score represents the leadership attitudes of supervisors. The basic hypothesis predicts that the difference between the leadership attitudes of supervisors and the expectations of superiors (d1) will be less than the difference between supervisors' attitudes and the expectations of subordinates (d2). Four null hypotheses were formulated as statistical tests of the basic hypothesis. Thus tests are made of both military and civilian supervisors with respect to both consideration and structure.

The statistical test applied in the present case was the "t" test for the significance of the difference between differences.[14] Procedurally, the first step involved the computation of a measure of variance for, first, the difference between supervisors attitudes and the superiors' perceptions of the supervisor (d1) and, second, the difference between supervisor's attitudes and the subordinates' perceptions of the supervisor (d2). These two variances were then pooled to arrive at a variance for the difference between the differences. The square root value of this pooled variance was then determined and divided into the difference between the differences to arrive at a computed value of "t." The number of degrees of freedom to be used was determined for each computed value of "t." Since the number of degrees of freedom approached 300, the value of "t" associated with infinity was used with a one-tailed test. Table 16 reflects the results of testing Hypothesis VII. Data used in these tests are contained in Appendices L, M, and N.

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[14]The statistical tests used in testing Hypotheses VII and VIII are described in Appendix K.

Table 16

Results of Testing Hypothesis VII

Null Hypothesis	Variables (Code)	Means	Differences	Degree of Freedom	Observed t	Level of Significance
	CONSIDERATION					
VII-A	Difference between leadership attitudes of mil supervisors (7.1) and perceptions of supervisor role by:	75.52				
	Superiors component (3.3)	87.16	11.64	284	-4.195	*
	Subordinates component (12.3)	74.64	.88			
VII-B	Difference between leadership attitudes of civ supervisors (8.1) and perceptions of supervisor role by:	78.26				
	Superiors component (3.3)	87.16	8.90			
	Subordinates component (12.3)	74.64	3.62	286	-2.048	*
	STRUCTURE					
VII-C	Differences between leadership attitudes of mil supervisors (7.2) and perceptions of supervisor role by:	52.86				
	Superiors component (6.3)	53.09	.23			
	Subordinates component (15.3)	45.04	7.82	298	3.914	.0005
VIII-D	Difference between leadership attitudes of civ supervisors (8.2) and perceptions of supervisor role by:	50.48				
	Superiors component (6.3)	53.09	2.61			
	Subordinates component (15.3)	45.04	5.44	299	1.658	.05

* Although there is a difference between these two differences, and it would appear that this difference is statistically significant, it is not in the predicted direction. With the one-tailed test of significance used here the null hypothesis could not be rejected.

Interpretation of Findings. Rejection of Null Hypotheses VII-A and VII-B proved untenable. It had been predicted, with respect to consideration, that the leadership attitudes of both military and civilian supervisors would more nearly agree with the expectations of superiors than with the expectations of subordinates. Unexpectedly, the findings were in the contrary direction. With respect to consideration, both military and civilian supervisors can be considered to be more responsive to the expectations of subordinates than to the expectations of superiors. This finding, although contrary to expectations, is considered significant in view of certain aspects of human relations theory and will be discussed in greater length in the following chapter.

There was evidence for rejection of Null Hypotheses VII-C and VII-D. With respect to structure, it had been predicted that the leadership attitudes of both military and civilian supervisors would more nearly agree with the expectations of superiors than with the expectations of subordinates. Rejection of the null hypotheses provided support for this prediction.

The data can be interpreted as meaning that with respect to structure supervisors are more responsive to the expectations of superiors. With respect to consideration, however, supervisors tend to be more responsive to the expectations of subordinates. The pattern of this finding, in part, challenges many of the practical considerations which would have suggested that supervisors would tend to be more responsive to the expectations of superiors with respect to both consideration and structure.[15]

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[15]See pages 25-26.

Hypothesis VIII

The leadership attitudes of military supervisors will reflect greater conformity with the expectations of superiors than will the leadership attitudes of civilian supervisors.

Null Hypotheses

VIII-A. With respect to consideration, the leadership attitudes of military supervisors will reflect no greater conformity with the expectations of superiors than will the leadership attitudes of civilian supervisors.

VIII-B. With respect to structure, the leadership attitudes of military supervisors will reflect no greater agreement with the expectations of superiors than will the leadership attitudes of civilian supervisors.

Presentation of the Data. In testing the present hypothesis the procedure employed in the previous hypothesis was carried one step further. In the previous hypothesis, it will be recalled, the prediction was made that, with respect to both consideration and structure, supervisors would be more oriented to the expectations of superiors than to the expectations of subordinates. With respect to structure, there was evidence to support the prediction that both military and civilian supervisors would tend to conform more nearly with the expectations of superiors. With respect to consideration, however, it was found that both military and civilian supervisors tend to conform to the expectations of subordinates. The present hypothesis was formulated assuming rejection of the null statements in the previous hypothesis. Even though

this assumption is no longer tenable, the present hypothesis could still be tested. While, with respect to consideration, it has been found that both military and civilian supervisors tend to conform to the expectations of subordinates, the present hypothesis was tested to determine whether the leadership attitudes of military supervisors don't conform to the expectations of superiors to a greater degree than do the leadership attitudes of civilian supervisors. With respect to structure the predictions of Hypothesis VII were supported and the testing of the present hypothesis logically followed.

The statistical computations employed in the present instance parallel those of the previous hypothesis. The concern is still with the significance of the difference between differences. First, the difference between the mean score of the expectations of superiors and the leadership attitudes of military supervisors was determined (d1). Secondly, the difference between the expectations of superiors and the leadership attitudes of civilian supervisors was computed (d2). To paraphrase the basic hypothesis, it was predicted that the former difference would be less than the latter difference. Table 17 reflects the results of testing Hypothesis VIII. Data used in these tests are contained in Appendices L, M and N.

Interpretation of the Findings. Examination of the data provided no basis for the rejection of the null hypotheses. While there were differences in the predicted direction, these differences were not large enough to be considered statistically significant. Null Hypothesis VIII-B, which pertained to structure, could have been rejected at the .10 level of

Table 17

Results of Testing Hypothesis VIII

Null Hypotheses	Variables (Code)	Means	Differences	Degrees of Freedom	Observed t	Level of Significance
	CONSIDERATION					
VIII-A	Differences between perceptions of supervisor role by superiors (3.3) and leadership attitudes of:	87.16				
	Mil supervisors (7.1)	75.52	11.64			
	Civ supervisors (8.1)	78.26	8.90	299	1.209	
	STRUCTURE					
VIII-B	Differences between perceptions of supervisor role by superiors (6.3) and leadership attitudes of:	53.09				
	Mil supervisors (7.2)	52.86	.23			
	Civ supervisors (8.2)	50.48	2.61	294	1.290	*

*In the predicted direction. Null hypothesis could have been rejected at .10 level of confidence.

confidence. This observation is made in order to emphasize the trend of the findings.

The findings of testing the present hypothesis can be corroborated by comparing the leadership attitudes of military and civilian supervisors with respect to consideration and structure. Table 18 reflects the results of this comparison.

Table 18

Leadership Attitudes of Military and Civilian Supervisors: "t" Test of Hypothesis That Means are Equal

Variable (Code)	Means	Observed t	Level of Significance
	CONSIDERATION		
Leadership attitudes of mil supervisors (7.1)	75.52		
Leadership attitudes of civ supervisors (8.1)	78.23	1.43	
	STRUCTURE		
Leadership attitudes of mil supervisors (7.2)	52.86		
Leadership attitudes of civ supervisors (8.2)	50.48	1.54	

Examination of the data presented in Table 18 can be interpreted as meaning that the difference between the leadership attitudes of military and civilian supervisors is not large enough to be considered significant at the .05 level of confidence. With no significant differences existing between the leadership attitudes of military and civilian supervisors there was no basis for rejecting Null Hypotheses VIII-A and VIII-B.

III. SUMMARY

This chapter has described the statistical methods and procedures used in analyzing the basic data. The results of testing the hypotheses were also described. The findings which were derived from this analysis were presented in summary form without detailed discussion of their meanings and implications. Interpretation and evaluation of the findings is the primary subject of the following chapter.

CHAPTER V

DISCUSSION AND CONCLUSIONS

The previous chapter presented the findings as they emerged from the analysis of the data without detailed discussion of their meanings and implications. The present chapter attempts to interpret and evaluate the findings in the light of the research design, methodology, and some additional variables not originally included in the present study. An attempt will also be made to relate the findings to the existing body of knowledge on leadership in military organizations. The interpretation will then be followed by an over-all evaluation of the findings in terms of theoretical and practical implications. Lastly, some suggestions for further research on the present problem will be made.

Initial attention is given to the interpretation of the findings.

I. DISCUSSION OF FINDINGS

This study was undertaken to determine the variation in perceptions which superiors and subordinates have of military and civilian first-line supervisors in a military organization. A secondary objective was to determine whether supervisors in military organizations tend to be superior-oriented or subordinate-oriented in their leadership attitudes. With respect to the first objective, two specific research questions were formulated. The specific questions researched were: (1) Is the leadership role of the military supervisor perceived by superiors and subordinates to be different from the leadership role of the civilian supervisor? (2) Are there patterns of differences or similarities in the perceptions which superiors and subordinates have of the leadership

role of the supervisor? (3) Do the leadership attitudes of military and civilian supervisors tend to more nearly conform with the expectations of their superiors or with the expectations of their subordinates?

Eight hypotheses were formulated as tests of the research questions. Hypotheses I and II related to the first research question; Hypotheses III through VI related to the second question, and Hypotheses VII and VIII related to the third. The hypotheses were phrased operationally in terms of consideration and structure, two essentially independent dimensions of leadership behavior.[1] Quantitative description of the variables was secured from samples randomly selected from stratified populations. All samples were composed equally of military and civilian persons. The compilation and the analysis of the data were conducted under conditions of control and uniformity which are considered adequate for the purpose of this study.

In the section that follows, the findings related to each of the research questions will be discussed. The findings in aggregate will then be discussed from the viewpoint of their theoretical and practical implications.

First Research Question

The leadership role of a supervisor in an organization is determined by a number of situational factors. One factor which appears to be peculiar to certain military organizations is the status of the supervisor,

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[1] See pages 2-4 for a definition and clarification of these terms.

i.e., whether he is military or civilian. The first research question was concerned with finding out whether superiors and subordinates perceive the leadership role of the military supervisor to be different from that of the civilian supervisor.

It was found that superiors expect the military supervisor to be lower in consideration and higher in structure than they expect the civilian supervisor to be. The relative aspects of these expectations are to be noted. This finding is not to be interpreted as meaning that superiors expect the military supervisor to be highly structured in his leadership behavior while evidencing little consideration for the feelings of individuals. It is, rather, to be interpreted as meaning that with respect to the civilian supervisor superiors expect the military supervisor to be more structured and less considerate. This interpretation minimizes the negative connotation often given to the supposed relationship between these two factors. It is not a matter of choice between consideration and structure. Expectations of high consideration need not be accompanied by expectations of low structure, or vice versa. One of the more significant aspects of the independence of these two dimensions of leadership behavior is that they can be combined into optimal combinations, dependent upon situational factors. Thus the perceptions which superiors have of the leadership role of military and civilian supervisors can logically be seen as optimal combinations of consideration and structure which are considered necessary for effective performance of duties by the respective supervisors. That superiors expect a different combination of military supervisors than of civilian supervisors could result from the differences in personal and social characteristics attri[illegible]ed to military and civilian supervisors.

The leadership role expected of an individual, if widely held, can be thought of as a stereotype of that role. Inquiry was made as to how widely held was this stereotype by superiors. In comparing military and civilian superiors, no significant differences were found in their expectations of military and civilian supervisors. The fact that there is a common idea among superiors as to what the leadership role of military and civilian supervisors is provides a powerful stimulus to the maintenance of those expectations. From the viewpoint of the supervisors themselves, constancy of expectations acts to minimize confusions and contributes to predictability on the part of superiors.

It must not be forgotten, however, that the expectations which superiors have of supervisors do not exist in isolation of expectations by others with whom supervisors must interact. It was predicted that both superiors and subordinates would expect the leadership role of the military supervisor to be lower in consideration and higher in structure than the leadership role of the civilian supervisor. The findings support the prediction with respect to the expectations of superiors. But what about subordinates? Unexpectedly, it was found that subordinates expect the military supervisor to be higher in both consideration and structure than the civilian supervisor.

What are the implications of this finding? First of all, the possibility of supervisors facing incompatible expectations is recognized. The perceptions which superiors have of military and civilian supervisors are only partially shared by subordinates. The unexpected part of the finding related to subordinates' perceptions with respect to consideration type behavior. As far as structure is concerned, subordinates

agreed with superiors in that they expect the military supervisor to be more structured than civilian supervisors. It is suggested that the stereotype of military and civilian supervisors, with respect to structure, is held by both superiors and subordinates. With respect to consideration, however, a number of possible explanations can be offered for the unexpected finding.

Reference to Table 11 reveals significant differences between the variances associated with superiors' and subordinates' perceptions of the leadership role of military and civilian supervisors with respect to consideration. Subordinates, in some instances, showed almost three times as much variation in their perceptions with respect to consideration than did superiors. This would suggest that subordinates lack agreement as to the consideration type behavior expected of supervisors. It can be theorized that subordinates, because of their relatively shorter tenure, have not had sufficient time to develop very clear ideas about the amount and kinds of consideration behavior expected of supervisors. The introduction of this explanation immediately raises two other questions. First, is it possible that the stereotype, as perceived by superiors, is no longer applicable? Or, assuming its continued applicability, is it a matter of the stereotype not being effectively communicated to subordinates?

Both questions can perhaps be disposed of by making a single observation. That both military and civilian superiors share a common idea of the stereotype, and the fact that subordinates concur with them as far as structure is concerned, suggests that the stereotype is still valid. That subordinates reflect a high level of agreement with respect

to structure suggests that the stereotype of military and civilian supervisors has, at least partially, been communicated to them.

A more realistic suggestion is that the stereotype of the supervisor in military organizations, as far as subordinates are concerned, is a stereotype defined largely in terms of behavioral patterns associated with the structure dimension. The stereotype is less adequately defined with respect to consideration. Or, as might be more likely, the original stereotype of the supervisor was well defined in terms of both consideration and structure dimensions, but under the impact of the human relations movement upon military leadership the stereotype has undergone change in that sphere of behavior commonly associated with the consideration dimension.[2]

Some additional indirect support for this explanation can be gained by observing the results of testing Hypothesis II. It had been predicted that both superiors and subordinates would reflect greater agreement in their perceptions of the leadership role of the military supervisor than of the civilian supervisor. Agreement was measured by the statistical concept of variance--the greater the variance, the less the agreement. The rationale of the hypothesis made reference to a number of official prescriptions and unwritten customs which appear to support the military supervisor and which are easily communicated to him and to those with whom he must interact. Viewing the civilian supervisor in a military organization is done with much less certainty than in the case of the military supervisor.

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[2]For a discussion of the impact of the human relations movement upon leadership practices in military organizations see Chapter 2, pp. 32-38.

The "F" test for the significance of the difference between variances revealed no significant intracomponent differences for either superiors or subordinates. Between component comparisons did reveal significant differences. With respect to structure, subordinates showed more variation in their perceptions of the military supervisor ($F = 1.35$) and the civilian supervisor ($F = 1.49$) than did superiors. These differences were not large enough to be considered significant at the .05 level, however. With respect to consideration, there were differences in the perceptions of the military supervisor ($F = 3.71$; $p \leq .02$) and of the civilian supervisor ($F = 3.13$; $p \leq .02$) with subordinates expressing the greater variance. This finding suggests, as has been mentioned, that subordinates lack a unanimity of understanding as to the amount or kinds of consideration behavior expected of military and civilian supervisors. For subordinates, as far as consideration is concerned, the stereotype of the supervisor does not exist.

To Summarize. Both superiors and subordinates perceive the military supervisor as being more structured in his leadership behavior than the civilian supervisor. Superiors expect civilian supervisors to be more considerate while subordinates have this expectation of military supervisors. Intracomponent comparisons reveal that superiors share a common idea of the leadership role of military and civilian supervisors. Subordinates were also shown to share a common perception. But the evidence indicates that superiors and subordinates, as a whole, do not share a common idea of the leadership role of military and civilian supervisors.

Second Research Question

The second research question was a logical extension of the first. It was broadly concerned with determining if there are any meaningful patterns of differences or similarities in the perceptions which superiors and subordinates have of the leadership role of the supervisor in military organizations. It provided for comparisons both between and within the component groups of superiors and subordinates.

Hypothesis III predicted that military superiors would perceive the leadership role of the supervisor to be lower in consideration and higher in structure than would civilian superiors. While there were differences in the predicted direction, they were not large enough to be considered other than chance differences. With respect to both consideration and structure, there appears to be a consensus of opinion among superiors as to what the leadership role of the supervisor should be.

Comparisons of military superiors and military subordinates revealed significant differences with respect to both consideration and structure. The expectations which military superiors have of the supervisor are higher not only in structure ($t = 5.89$; $p \leq .0005$) but also in consideration ($t = 5.18$; $p \leq .0005$) than the expectations of military subordinates. Comparisons of civilian superiors and civilian subordinates revealed a similar pattern of significant differences for both consideration ($t = 5.14$; $p \leq .0005$) and structure ($t = 4.75$; $p \leq .0005$).

In comparing military subordinates and civilian subordinates, it was predicted that military subordinates would perceive the leadership role of the supervisor to be lower in consideration and higher in

structure than would civilian subordinates. Examination of the data offered no basis for rejection of the null hypothesis. Thus it can be concluded that military and civilian subordinates share a common idea of the leadership role of the supervisor with respect to both consideration and structure. Surprisingly, as Table 15 indicates, civilian subordinates expected the leadership role of the supervisor to be more highly structured than did military subordinates. Although this difference lacked statistical significance it is of theoretical significance when related to the prevailing theory that military persons are more disposed to acceptance of authoritarian ideology than civilian persons.[3]

The findings derived from testing the hypotheses related to the second research question revealed some discernible patterns in the perceptions which superiors and subordinates have of the leadership role of the supervisor. Between military and civilian superiors no differences were found. Neither were differences found between military and civilian subordinates. Differences were found between military superiors and military subordinates, also between civilian superiors and civilian subordinates. Thus it appeared more meaningful to explore the differences which were found to exist between superiors and subordinates.

Reference to Tables 6 and 8 reveal superiors to differ from subordinates in a number of personal characteristics. On the average, superiors are older, have more years of formal education, and more years in or working for the Air Force. Correlational tests between these

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[3]See Elizabeth G. French and R. R. Ernest, "The Relations Between Authoritarianism and Acceptance of Military Ideology," Journal of Personality, 24:181-191, December 1955.

background characteristics of superiors and subordinates and their resulting consideration and structure scores revealed, with only four exceptions, no significant relationships.[4] The fact that superiors scored higher in their expectations with respect to both consideration and structure than did subordinates would suggest the probability of significant relationships with respect to certain of the personal characteristics. For civilian superiors, their expectations of considerations of both military ($r = .28$; $p \leq .05$) and civilian ($r = .30$; $p \leq .05$) supervisors related significantly with age. This finding can be interpreted as meaning that as civilian superiors increase in age they expect more consideration type behavior of military and civilian supervisors. Table 3 further reveals that the mean age of civilian superiors is 45.88 years while the mean age of military superiors is 39.50 years. The difference between ages for military and civilian superiors was found to be statistically significant ($t = 4.325$; $p \leq .001$). It has been shown previously that no significant differences exist in the expectations of military and civilian superiors with respect to structure. In view of the significant relationship between age and consideration scores of civilian superiors and the general prediction that military superiors would score lower on consideration than would civilian superiors, the finding that they do not differ in their expectations with respect to consideration is not readily explanable.

Situationally, superiors differ from subordinates primarily with respect to the fact that superiors have increased responsibilities.

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[4]See Tables 6 and 8.

Superiors, as defined in terms of this study, are second-line supervisors. Thus they have supervisory responsibilities while the subordinates do not. It can be theorized at this point that the need for a supervisor to initiate structure becomes more pressing as his supervisory responsibilities increase.[5] Findings related to the research question at hand suggest that the supervisor tends also to become more considerate as his supervisory responsibilities increase. Viewed in a composite sense, this is the way superiors appear to go about achieving the goals of their groups. Without any attempt to relate this behavioral pattern to group effectiveness, it would appear that superiors see no incompatibility in establishing well-defined patterns of work while, at the same time, remaining highly considerate of the feelings of individuals.

To Summarize. Testing of the hypotheses related to the second research question resulted in a schema in which the expectations which superiors and subordinates have of the leadership role of the supervisor can be pictured. No significance differences were found between military and civilian superiors. Neither were significant differences found between military and civilian subordinates. Superiors, both military and civilian, perceive the leadership role of the supervisor to be higher in consideration and higher in structure than do military and civilian subordinates.

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[5] Initiation of structure is one of the primary techniques through which the management function of control is exercised. For a comprehensive discussion of the various processes and techniques of controlling see Harold Koontz and Cyric O'Donnell, Principles of Management, 3rd ed. (New York: McGraw-Hill Book Company, 1964), Chapter 28.

Third Research Question

The third research question, as far as its theoretical and practical implications are concerned, was a natural capstone to the first two questions. It was in this regard that the data relative to the leadership attitudes of military and civilian supervisors was considered. Having been a focus of concern throughout the earlier discussion, the attitudes of the supervisors themselves now become the matter of discussion.

To restate the question: Do the leadership attitudes of military and civilian supervisors tend to more nearly agree with the expectations of superiors or with the expectations of subordinates? For reasons which were largely practical ones, it was hypothesized that the leadership attitudes of both military and civilian supervisors would tend to fit the expectations of superiors more than the expectations of subordinates.[6] It was further hypothesized that the leadership attitudes of military supervisors would fit the expectations of superiors to a greater degree than would the attitudes of civilian supervisors. The findings offered only partial support for the basic hypotheses.

With respect to structure, both military ($t = 3.194$; $p \leq .0005$) and civilian ($t = 1.658$; $p \leq .05$) supervisors conformed to the expectations of superiors in their leadership attitudes. With respect to consideration, however, there was no evidence to support the basic hypothesis. In fact, it was found that the leadership attitudes of military and civilian supervisors, with respect to consideration, tended to conform to the expectations of subordinates. In terms of

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[6] See pages 25-26.

the practical aspects of the rationale underlying the basic hypothesis this was a highly disturbing finding. Yet, strong theoretical support for this finding can be established.

In view of the differing expectations of superiors and subordinates, it can be shown that supervisors face an apparent problem of role conflict. Analysis of the data on the leadership attitudes of the supervisors furnishes a clue as to how they resolve this apparent conflict. With respect to structure, both military and civilian supervisors tend to conform to the expectations of superiors. This finding emphasizes what must be recognized as the primary concern of superiors: productivity. In their relationships with superiors, it can be theorized that supervisors deal with matters related to unit productivity more than matters related to behavioral aspects of consideration. It can also be theorized, if not actually observed, that most of the formal communications and directives from higher management to supervisors are more directly related to how to get the job done than to matters related to the employment of human relations skills. The supervisor is made to realize that he is being depended upon to get the job done. But how does he go about it? He knows that he can get the job done only through the coordinated efforts of those subordinates working for him. He knows, too, that he cannot "unstructure" what has already been structured through formal directives from higher management. Thus it can be argued that the leadership attitudes of supervisors with respect to structure are a reflection of the formal requirements for structure by higher management.

At this point the author would like to interject a personal observation with respect to initiation of structure. It appears that

there are two kinds of activity which might be called initiation of structure. One is structuring the work; the other is structuring the worker. The latter appears to be more related to consideration than the former. The essence of this observation is that structuring may be considerate or inconsiderate.

An organization must have some structure or else it will soon cease to exist. Some structure is always better than none. The role of structure in an organization has been emphasized by one author who referred to the structure of an organization as the organization.[7] In this sense, structure can be considered as a system of coordinative or functional relationships. It is this combination of structure and activities which makes an organization dynamic. But there is evidence that the amount and kinds of structure employed have a differentiated impact upon employees.[8] There is always the danger of too-little or too-much structure. Structure is necessary in order to provide well defined relationships and stability, but too much structure often acts to hinder self-reliance and initiative.

Structure, when employed to define work relationships, provides orderliness and stability. To be used successfully it should always be related to such situational variables as the nature of the work and the personalities and skill levels of employees. Failure to adequately consider these situational variables often has the end result of

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[7] Robert S. Weiss, "A Structure-Function Approach to Organization," The Journal of Social Issues, 12:61-67, No. 2, 1956.

[8] James C. Worthy, "Organizational Structure and Employee Morale," American Sociological Review, 15:169-119, April 1950.

structuring people rather than work. The consequences are poor leader-worker relationships.

It can be argued, for example, that the exercise of certain human relations activities can be highly structured. Consider, for example, a formally instituted procedure for handling an individual's complaint or grievance. The fact that the complaint is given a proper hearing can be considered as consideration type behavior. Yet, because the method of hearing the complaint is prescribed and formalized it takes on an aspect of being structured.

It is suggested that as the supervisor goes about achieving the goals of his group he makes a distinction in the type of structure he employs. He sees no conflict in holding to basic human relations principles in his associations with subordinates while, at the same time, holding them to a high level of performance of assigned duties. This, in essence, was the finding of Stanton in his study of the relationship between company management policies and supervisors' attitudes toward supervision.[9] In a company with a management philosophy described as authoritarian, Stanton found that supervisors believed in establishing a high level of operating structure and allowing operative employees little control over their jobs. In another company, with management policies described as democratic, he found that supervisors believed in less structuring of the work situation and allowing employees greater freedom on the job. Significantly, between the two

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[9]Erwin S. Stanton, "Company Policies and Supervisors' Attitudes Toward Supervision," Journal of Applied Psychology, 44:22-26, February 1960.

companies there were no differences in supervisors' attitudes as to the extent of consideration that should be shown for the feelings of the individual employee.

The fact that consideration and structure are independent of each other means that one cannot be predicted from a knowledge of the other. It is suggested, however, that knowledge of the situation variables might provide some insights to the relationship of these two dimensions in the leadership attitudes of a group of supervisors.[10] In the present study it was found that superiors expected supervisors to be more considerate than the supervisors thought they should be. This finding raises the question of the influence of the leadership "climate" under which supervisors work. In a study of industrial foremen, Fleishman found that leadership climate (leadership style of the foreman's boss) was the single most important determinant of the leadership attitudes of the foremen.[11] Foremen who worked under a boss who was considerate tended, in turn, to be considerate of their own workers. The same "chain-reaction" effect was also observed with respect to structure.

In Fleishman's study no significant differences were found between the leadership attitudes of the foremen and their supervisors, but highly significant differences were found between the attitudes of the foremen and their workers. This was true for both consideration and

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[10]For a discussion of the influence of situational variables upon the leadership style of supervisors see Robert Tannenbaum and W. H. Schmidt, "How to Choose A Leadership Pattern," Harvard Business Review, 36:95-101, March-April 1958.

[11]Edwin A. Fleishman, "Leadership Climate, Human Relations Training, and Supervisory Behavior," Personnel Psychology, 6:205-222, Summer 1953.

structure. Hence the leadership climate of the foremen was described as a single influence; that is, the attitudes and behavior of the foremen's supervisors. In the present research, however, there is evidence that the leadership climate of first-line supervisors is a two dimensional influence. Where Fleishman found that the supervisors of the foremen felt the foremen should be more structured and less considerate in dealing with their work groups, the present study indicates that superiors perceive the leadership role of the supervisor to be high in both structure and consideration. Generally, it was found that the leadership attitudes of the supervisors fell somewhere between the expectations of superiors and the expectations of subordinates. With respect to structure, the supervisors' leadership attitudes were significantly closer to the expectations of superiors. It had been hypothesized that the same pattern would be found with respect to consideration. But such was not the case. The supervisors' attitudes, with respect to consideration, were significantly closer to the expectations of subordinates.

It is not suggested, on the basis of this study, that leadership climate is always a two dimensional influence. Rather, it is suggested that the expectations and practices of superiors and subordinates constitute an important environmental variable which the supervisor must consider in fashioning his own attitudes about how he should direct his work group. If the attitudes and expectations of superiors and subordinates are homogeneous, it would appear that the supervisor could consider them a single influence. But when there are significant differences between the attitudes and expectations of superiors and those of

subordinates the supervisor inevitably finds himself in a conflict situation. It has been previously argued that, in this sort of conflict situation, the supervisor attempts to synthesize the two concerns in some way which appears to be least threatening to him. Underlying these efforts of the supervisor are a group of situational variables which the supervisor must be aware of and take into consideration. The more important of these variables would include the following: To what extent do the attitudes and expectations of superiors and subordinates differ? To what extent have these expectations been communicated to him? In what ways and to what extent do these two components exert pressure to cause the supervisor to conform to expectations? What are his own beliefs as to what constitutes appropriate leadership behavior? To what extent can the supervisor tolerate differences between his own leadership attitudes and actual behavior?

The author's own experience in military organizations prompts a conclusion that supervisors are psychologically closer to subordinates than to superiors. This psychological distance between supervisors and superiors acts to hinder effective communication with respect to consideration far more than it does with respect to structure. Other means are readily available to let the supervisor know how the superior feels about structure, but not for consideration. It is suggested that supervisors might not actually know of the freedom or leeway they have in being more considerate. In their work relationships with subordinates, supervisors apparently believe that they are doing what is expected of them when they conform to the consideration expectations of subordinates. It is a matter of speculation as to what the supervisors' attitudes would be if they knew of the more permissive expectations of superiors. It can

be concluded that supervisors employ what appears to them to be an optimal combination of consideration and structure. The leadership style of a supervisor is apparently a reflection of the many forces which are present in every leadership situation. Effective supervision, it can be argued, is largely a process of the supervisor relating his own behavior to the expectations and practices of his superiors and subordinates and certain impersonal forces in the specific leadership situation. Under one set of conditions a supervisor might be permitted, if not expected, to employ a highly considerate leadership style. Under different conditions, he might be required to adopt a more structured approach.

If described in terms of his leadership attitudes, the supervisor is high in structure and low in consideration. This description conforms to the traditional stereotype of the supervisor in military organizations. This description is in conflict, however, with the behavioral expectations of superiors who perceive the leadership role of the supervisor to be high in both structure and consideration. If the superior, who has been defined as a second-line supervisor, can be described in terms of his perceptions of the leadership role of supervisors he is high in structure and high in consideration. This description challenges the traditional stereotype of the supervisor in military organizations and offers support for the conclusion that continued experience in the Air Force does not necessarily result in increased authoritarianism and production-oriented behavior.

To complete the discussion of the findings related to the third research question, there remains the prediction that military supervisors would conform to a greater degree with the expectations of superiors than would civilian supervisors. Examination of the data revealed differences

too small to warrant rejection of the null hypothesis. The fact that no significant differences were found between the leadership attitudes of military and civilian supervisors suggest that they share a common idea of how they should go about achieving the goals of their work groups.

II. SUMMARY AND IMPLICATIONS

The primary purpose of this study was to determine and assess the significance of differences and similarities in the perceptions which superiors and subordinates have of the leadership role of military and civilian supervisors in a military setting. A secondary purpose was to determine the leadership orientation of first-line supervisors. The findings in this study have been interpreted in terms of more general theories of leadership and management in military organizations. No attempt was made to impute cause and effect relationships in the findings.

As tested against the present data the hypotheses formulated in this study received only differentiated support. Rather than state the findings in relationship to specific hypotheses, an attempt will be made to relate them to the larger body of theory in more general or abstract terms. Although not specifically hypothesized or statistically tested, related findings suggest that continued experience in or working for the Air Force leads both military and civilian persons to reflect more consideration and more structure in their leadership preferences and attitudes. Before this finding can be stated as a conclusion additional corroborating evidence is needed. The data in the present study came from a special setting and cannot be used to make such a case for the total military establishment. Because of the stratified nature of the study, any conclusion that the findings would also hold in other

military environments must be approached with caution. However, there is an increasing consensus that it is wrong to perfunctorily assume that the military situation is ipso facto more authoritarian than civilian organizations of comparable size.[12]

The view which for many years exaggerated the differences between military and civilian organizations now appears to follow a more moderate approach by emphasizing the characteristics of large scale organizations in general. Still, the essential characteristics of military organizations must not be overlooked. Without undertaking to describe the military environment, it is suggested that this environment affects both military and civilian persons in a similar manner. This finding challenges previous expectations and findings along the lines of the personality characteristics of persons who seek to make careers of the military services. Civilian persons recruited for employment by governmental military agencies are recruited in accordance with the same administrative procedures employed in recruiting persons for employment by other governmental nonmilitary agencies.[13] Thus a defense of recruitment differences would not be tenable as an explanation of the present findings.

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[12] Theorists who have argued this case include William M. Evan, "Due Process of Law in Military and Industrial Organizations," Administrative Science Quarterly, 7:187-207, September 1962; Morris Janowitz, "Changing Patterns of Organizational Authority: The Military Establishment," Administrative Science Quarterly, 3:473-493, March 1959; and Hans Speier, "The American Soldier and the Sociology of Military Organization," in Robert K. Merton and P. F. Lazarsfeld (eds.), Continuities in Social Research: Studies in the Scope and Method "The American Soldier," Glencoe, Illinois: The Free Press, 1950).

[13] Federal Personnel Manual (Washington, D. C.: U. S. Civil Service Commission, 1963), Chapter 300.

A second aspect of the present study, related to the determinants of the leadership style of supervisors, has both theoretical and practical implications. It had been predicted that supervisors would tend to conform to the expectations of superiors with respect to both consideration and structure. Support was found for that part of the prediction which pertained to structure. With respect to consideration, however, the finding was in the opposite direction--supervisors tend to conform to the expectations of subordinates. When there are significant differences between the expectation of subordinates and those of superiors, as were found in the present study, the conformance of supervisors' attitudes to subordinates' expectations is not conducive to easy explanation. If the arguments related to the dependence of the supervisor upon his superior have validity[14] then it would be expected that supervisors would try to please superiors in every way possible. The present finding suggests a certain independence upon the part of the supervisor. It is not meant that the supervisor, per se, is independent, but that the situational variables permit him a degree of independence of action not commonly thought to be present in military organizations. Admittedly, there is one aspect to this finding which leaves the author without a totally acceptable explanation. If subordinates like consideration why don't they expect more of it from supervisors? Why do supervisors believe they should employ less consideration than superiors expect them to employ? Attempts to answer these questions appear feeble when judged by their theoretical and practical significance.

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[14] A representative statement of this argument is contained in Douglas McGregor, "Conditions of Effective Leadership in the Industrial Organization," Journal of Consulting Psychology, 8:55-63, March-April 1944.

If evaluated in terms of the application of the findings, this study has many practical implications. To systematically describe the many possibilities for application of these findings would be an almost endless task. Perhaps the true significance of these and related findings can be emphasized by pointing to the nature of many administrative processes in military organizations. For example, the assignment of persons to positions entailing supervisory responsibilities, when done in a mechanistic fashion, overlooks certain aspects of the individual "case." If the relationship between quality of supervision and job satisfaction and productivity is accepted it would follow that, in the process of appointing supervisors, attempts would be made to appoint a supervisor considered capable of fulfilling the expectations of both superiors and subordinates. Lack of correspondence between the attitudes of supervisors and the expectations of subordinates and superiors inevitably leads to a rejection of one by the other. A work environment that is inconsistent with the maintenance of an individual's role becomes, for that individual, confusing and unpredictable. His adjustments to that environment become all the more difficult.

Finally, these findings also have significant implications for military leadership training. Directors of leadership training programs might profitably re-examine their assumptions about there being one correct method of supervision or one proper combination of consideration and structure combined into a leadership style. Practices or methods judged to be appropriate for dealing with persons with one set of expectations may be entirely inappropriate for dealing with persons with different expectations. This study offers support for the theory

that effective supervision is largely a matter of the supervisor relating his personal behavior to the expectations, values, and skills of subordinates and superiors and to other relevant forces in the environment.

III. SUGGESTIONS FOR FUTURE RESEARCH

The immediate purpose of this research was to determine the variation in perceptions which superiors and subordinates, both military and civilian, have of the leadership role of military and civilian first-line supervisors. During the course of this research there have come indications, from relevant theory and the findings of this research, of potentially useful areas of research. Some of these areas related to the present study are outlined below.

The present research involved the examination of data secured from subjects who were, for the most part, assigned to the lower echelons of their organizations. A major finding of the present research infers that as persons progress into the higher echelons of organization--from subordinate to supervisor to superior--there is a change in their perceptions of the leadership behavior of supervisors. The structure of this research furnishes no evidence whether these findings are satisfactory explanations of the kinds of leadership behavior expected from persons at still higher levels of management. Before findings of the type derived from this study can be translated into generalizations about leadership behavior in military organizations, it is considered necessary to determine whether these findings are appropriate at higher levels of management.[15]

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[15]For a discussion of the need for additional research into the behavioral problems of higher level managers see Mason Haire, "Psychological Problems Relevant to Business and Industry," Psychological Bulletin, 56:187-188, May 1959. Many of the problems cited by the author are considered relevant to military managers.

The structure of this research leaves the investigator with another meaningful research question. It will be recalled that the subjects tested in this study were drawn from organizations and staff agencies which were involved in support functions, i.e., they had no direct responsibility for combat oriented duties.[16] It may be worthwhile to determine if military supervisors in combat organizations differ in leadership attitudes from supervisors in non-combat or support organizations.

In the review of the literature evidence was presented relative to the similarities which exist between the duties of persons working in military organizations engaged primarily in support functions and the duties of persons engaged in civilian occupations. As far as could be determined, there have been no studies which empirically compared supervisory and leadership behavior in support type military organizations and similar non-military organizations.

Also related to the preceding suggestion is the observation that, within large bureaucratic organizations, there are certain characteristics or conditions which foster or are conducive to the formation of certain philosophies of leadership. For example, it is considered a meaningful area of research to determine whether leadership practices in governmental military organizations differ from those found in a large governmental non-military organization.

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[16] The distinction between support and combat organizations is purely a functional distinction. This distinction is becoming less clear as military organizations become more complex.

The environment of military organizations has frequently been cited as a factor contributing to increased tendencies toward authoritarian leadership practices. Indeed, the author is sympathetic to the theory that the nature of certain military organizations makes this sort of leadership philosophy necessary. However, this observation immediately raises as many questions as it attempts to answer. Consider the following situation: A group of persons engaged in ordinary civilian occupations are members of a part-time military organizations such as the Air National Guard. These persons ordinarily attend Air National Guard meetings on the weekends and attend an annual summer encampment of fifteen days or so. Clearly, these persons are a part of and are influenced by two different work environments. The question which logically presents itself is: Do these persons tend to exhibit a common or different pattern of leadership in the two work environments?

The shortcomings of the present study have served to emphasize to the author the complex demands of the "ideal" study. While the "ideal" study remains an elusive goal, it is felt that greater efforts to control extraneous factors will go far toward eliminating the shortcomings of many current studies. Future studies related to the present research should strive for greater control, consistent with feasibility considerations.

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APPENDICES

APPENDIX A

OPINION QUESTIONNAIRE[1]

FORM A

This questionnaire is part of a study of the attitudes and opinions of Air Force military and civilian personnel on the subject of supervisory leadership. It is being made by a graduate student at the University of Washington.

This is not a test of any sort and there are no right or wrong answers to the statements that follow. It's your opinions and feelings that are important. The best answer to each statement is your personal opinion. Your answers will be treated with complete confidence. They will be known only to the person who is conducting this study and will not be available to any other person.

There are four parts to this questionnaire. Further instructions are furnished at the beginning of each part. Be sure to read these instructions carefully. The final value of this study will depend upon the frankness and care with which you answer the question implied in each statement.

Your participation in this study will be appreciated.

Do not turn the page until asked to do so.

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[1]PARTS I and IV of this questionnaire are adaptations of the Supervisory Behavior Description Questionnaire, Copyright 1957, The Ohio State University. Used with permission.

OPINION QUESTIONNAIRE

FORM A - PART I

In this part you are asked to describe the leadership behavior you expect from a military supervisor working under you as he supervises his work group. A list of statements have been prepared that may be used to describe the leadership behavior of Air Force supervisors. Although some of the statements may appear similar, they express differences that are important in the description of leadership behavior. Each statement should be considered a separate description. Read each of the following statements carefully. Think about how frequently or to what extent you would expect a military supervisor working under you to engage in the behavior described by the statement. Place an "X" in the space preceding the answer you choose. Make sure that you answer all of the statements.

---

1. He insists that everything be done his way.

____Always ____Often ____Occasionally ____Seldom ____Never

2. He criticizes a specific act rather than a particular individual.

____Always ____Often ____Occasionally ____Seldom ____Never

3. He criticizes his workers in front of others.

____Always ____Often ____Occasionally ____Seldom ____Never

4. He insists that he be informed on decisions made by people under him.

____Always ____Often ____Occasionally ____Seldom ____Never

5. He asks for sacrifices from his workers for the good of the entire section.

____Always ____Often ____Occasionally ____Seldom ____Never

6. He encourages overtime work.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

7. He acts without consulting his workers first.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

8. He helps his workers with their personal problems.

____Always ____Often ____Occasionally ____Seldom ____Never

9. He rejects suggestions for change.

____Always ____Often ____Occasionally ____Seldom ____Never

10. He demands more than his workers can do.

____Always ____Often ____Occasionally ____Seldom ____Never

11. He stands up for his workers even though it makes him unpopular.

____Always ____Often ____Occasionally ____Seldom ____Never

12. He insists that his workers follow standard ways of doing things in every detail.

____Always ____Often ____Occasionally ____Seldom ____Never

13. He emphasizes the quantity of work.

____A great deal ____Fairly much ____To some degree ____Conparatively little ____Not at all

14. He tries out his new ideas.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

15. He refuses to explain his actions.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

16. He is willing to make changes.

____Always ____Often ____Occasionally ____Seldom ____Never

17. He "needles" the people under him for greater effort.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

18. He treats all his workers as his equal.

____Always ____Often ____Occasionally ____Seldom ____Never

19. He criticizes poor work.

____Always ____Often ____Occasionally ____Seldom ____Never

20. He emphasizes meeting of deadlines.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

21. He is slow to accept new ideas.

____Always ____Often ____Occasionally ____Seldom ____Never

22. He is friendly and can be easily approached.

____Always ____Often ____Occasionally ____Seldom ____Never

23. He encourages slow-working persons to greater efforts.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

24. He stresses being ahead of competing work groups.

____A great deal ____Fairly often ____To some degree ____Comparatively little ____Not at all

25. He gets the approval of his workers on important matters before going ahead.

____Always ____Often ____Occasionally ____Seldom ____Never

26. He asks persons under him who are slow to work faster.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

27. He offers new approaches to problems.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

28. He lets the people under him do their work the way they think best.

____Always ____Often ____Occasionally ____Seldom ____Never

29. He assigns people working for him to particular tasks.

____Always ____Often ____Occasionally ____Seldom ____Never

30. He stresses the importance of high morale among his workers.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

31. He decides in detail what shall be done and how it shall be done.

____Always ____Often ____Occasionally ____Seldom ____Never

32. He treats people in his work group without considering their feelings.

____Always ____Often ____Occasionally ____Seldom ____Never

33. He puts suggestions that are made by his workers into operation.

____Always ____Often ____Occasionally ____Seldom ____Never

34. He backs up his workers in their actions.

____Always ____Often ____Occasionally ____Seldom ____Never

35. He does personal favors for the people in his work group.

____Always ____Often ____Occasionally ____Seldom ____Never

36. He changes the duties of people in his work group without first talking it over with them.

____Always ____Often ____Occasionally ____Seldom ____Never

37. He "rides" the worker who makes a mistake.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

38. He refuses to give in when people disagree with him.

____Always ____Often ____Occasionally ____Seldom ____Never

39. He is easy to understand.

____Always ____Often ____Occasionally ____Seldom ____Never

40. He sees that a worker is rewarded for a job well done.

____Always ____Often ____Occasionally ____Seldom ____Never

41. He rules with an iron hand.

____Always ____Often ____Occasionally ____Seldom ____Never

42. He makes his workers feel at ease when talking with them.

____Always ____Often ____Occasionally ____Seldom ____Never

43. He tries to keep the people in his work group in good standing with those in higher authority.

____Always ____Often ____Occasionally ____Seldom ____Never

44. He talks about how much should be done.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

45. He waits for his workers to push new ideas before he does.

____Always ____Often ____Occasionally ____Seldom ____Never

46. He sees to it that the people under him are working up to their limits.

____Always ____Often ____Occasionally ____Seldom ____Never

47. He expresses his appreciation when one of his workers does a good job.

____Always ____Often ____Occasionally ____Seldom ____Never

48. He resists changes in the ways of doing things.

____Always ____Often ____Occasionally ____Seldom ____Never

OPINION QUESTIONNAIRE

FORM A - PART II

Please fill in the following blanks. Our purpose in this part is to gain some background information about military and civilian personnel in the Air Force. Where applicable, round your answer to the nearest whole year.

Do not sign your name.

---

1. Your military rank or civilian grade _____

2. Male _____ Female _____

3. Your age _____

4. Number of years of formal education _____

5. For military supervisors only: Number of years of active military duty _____

6. For civilian supervisors only: Number of years that you have worked for the Air Force _____

7. Time assigned to or working at this base:
   A. Less than six months____
   B. Six months to one year___
   C. More than one year_____
   D. More than three years___
   E. More than six years_____

8. Number of years that you have worked as a supervisor _____

9. Number of persons you are presently <u>directly</u> supervising _____

10. Number of military persons you are presently <u>directly</u> supervising____

11. Number of civilian persons you are presently <u>directly</u> supervising____

12. Your legal residence or home of record: City _____

    State _____

OPINION QUESTIONNAIRE

FORM A - PART III

In this part we are interested in finding out how familiar you are with certain slang words which are used by persons in the Air Force. Read each of the following statements carefully and then indicate, by placing an "X" in the appropriate blank, your understanding of the meaning or accepted usage of each of the slang words.

---

1. A "shavetail" is a

____short haircut.
____second lieutenant.
____bomb or bullet that narrowly missed its target.
____clean, newly pressed uniform.

2. To be "browned-off" is to be

____exposed to enemy fire.
____neglected by other persons.
____disgusted or disgruntled.
____punished in a light manner.

3. A "bucket of bolts" is

____an airplane engine.
____a difficult problem.
____a regulation issued by higher headquarters.
____a delinquent report.

4. To "bird dog" is to

____goof off.
____request an assignment to a higher headquarters.
____pursue a matter persistently.
____take some time off for rest and relaxation.

5. An "old head" is a person who

____can't be fooled.
____is ready for retirement.
____has been around for a long time.
____offers free advice.

6. A "hangar queen" is a

____pin-up.
____a damaged or disabled aircraft kept for cannibalization.
____female aircraft maintenance worker.
____carry-around oxygen bottle.

7. A "coop" is

____an aircraft hangar.
____the place where a person works.
____the place where a person sleeps.
____a cockpit or cockpit canopy.

8. To "high-tail it" is to

____establish a higher priority for a task or report.
____go on leave.
____run or fly away fast.
____make an aerial reconnaisance from a high altitude.

9. A "jerry can" is

____a booster rocket used in takeoffs by a jet airplane.
____a barrage balloon.
____an aluminum mussette bag.
____a five-gallon, flat-sided narrow can.

10. A "hangar pilot" is

____a non-rated officer.
____an officer who has been relieved of flying duties.
____an untruthful, boastful pilot.
____a noncommissioned officer who supervises the activities in a particular hangar.

OPINION QUESTIONNAIRE

FORM A - PART IV

In this part you are asked to describe the leadership behavior you expect from a civilian supervisor working under you as he supervises his work group. A list of statements have been prepared that may be used to describe the leadership behavior of Air Force supervisors. Although some of the statements may appear similar, they express differences that are important in the description of leadership behavior. Each statement should be considered a separate description. Read each of the following statements carefully. Think about how frequently or to what extent you would expect a civilian supervisor working under you to engage in the behavior described by the statement. Place an "X" in the space preceding the answer you choose. Make sure you answer all of the statements.

Do not refer back to other parts.

QUESTIONNAIRE ITEMS USED IN THIS PART

ARE THE SAME ITEMS USED IN PART I

APPENDIX B

OPINION QUESTIONNAIRE[1]

FORM B

This questionnaire is part of a study of the attitudes and opinions of Air Force military and civilian personnel on the subject of supervisory leadership. It is being bade by a graduate student at the University of Washington.

This is not a test of any sort and there are no right or wrong answers to the statements that follow. It's your opinions and feelings that are important. The best answer to each statement is your personal opinion. Your answers will be treated with complete confidence. They will be known only to the person who is conducting this study and will not be available to any other person.

There are two parts to this questionnaire. Further instructions are furnished at the beginning of each part. Be sure to read these instructions carefully. The final value of this study will depend upon the frankness and care with which you answer the question implied in each statement.

Your participation in this study will be appreciated.

Do not turn the page until asked to do so.

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[1]PART I of this questionnaire is an adaptation of the Leadership Opinion Questionnaire, Copyright 1957, The Ohio State University. Used with permission.

OPINION QUESTIONNAIRE

FORM B - PART I

In this part you are asked to describe how you feel you should act as the immediate supervisor of your work group. A list of statements have been prepared that may be used to describe the leadership behavior of Air Force supervisors. Although some of the statements may appear similar, they express differences that are important in the description of leadership behavior. Each statement should be considered as a separate description. Read each of the following statements carefully. Think about how frequently or to what extent you think you should engage in the behavior described by the statement. Place an "X" in the space preceding the answer you choose. Make sure you answer all of the statements.

---

1. Help people in my work group with their personal problems.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

2. Refuse to compromise a point.

____Always ____Often ____Occasionally ____Seldom ____Never

3. Emphasize the meeting of deadlines.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

4. Reject suggestions for change.

____Always ____Often ____Occasionally ____Seldom ____Never

5. Ask for more than members of my work group can get done.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

6. Offer new approaches to problems.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

7. "Needle" people in my work group for great effort.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

8. Back up what the people working for me do.

____Always ____Often ____Occasionally ____Seldom ____Never

9. Criticize poor work.

____Always ____Often ____Occasionally ____Seldom ____Never

10. Talk about how much work should be done.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

11. Do personal favors for people in my work group.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

12. Let the people in my work group do their work the way they think best.

____Always ____Often ____Occasionally ____Seldom ____Never

13. Act without consulting my work group.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

14. Stress being ahead of other competing work groups.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

15. Encourage overtime work.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

16. Be willing to make changes.

____Always ____Often ____Occasionally ____Seldom ____Never

17. Give in to others in discussions with my work group.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

18. Rule with an iron hand.

____Always ____Often ____Occasionally ____Seldom ____Never

19. Be slow to accept new ideas.

____Always ____Often ____Occasionally ____Seldom ____Never

20. See to it that people in my work group are working up to capacity.

____Always ____Often ____Occasionally ____Seldom ____Never

21. Resist changes in the way of doing things.

____A great deal ____Fairly much ____To some degree ____Comparatively little ____Not at all

22. Treat all people in my work group as my equal.

____Always ____Often ____Occasionally ____Seldom ____Never

23. Ask that the people in my work group follow to the letter those standard work routines handed down to me.

____Always ____Often ____Occasionally ____Seldom ____Never

24. Insist that I be informed on decisions made by people under me in my work group.

____Always ____Often ____Occasionally ____Seldom ____Never

25. Encourage slow working people in my work group to work harder.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

26. Decide in detail what shall be done and how it shall be done by my work group.

____Always ____Often ____Occasionally ____Seldom ____Never

27. Insist that everything be done my way.

____Always ____Often ____Occasionally ____Seldom ____Never

28. Put the group's welfare above the welfare of any person in the work group.

____Always ____Often ____Occasionally ____Seldom ____Never

29. Wait for people in my work group to push new ideas.

____Always ____Often ____Occasionally ____Seldom ____Never

30. Speak in a manner not to be questioned.

____Always ____Often ____Occasionally _____Seldom ____Never

31. Assign people in my work group to particular tasks.

____Always ____Often ____Occasionally ____Seldom ____Never

32. Put suggestions made by people in my work group into operation.

____Always ____Often ____Occasionally ____Seldom ____Never

33. Try out my own new ideas in my work group.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

34. Refuse to explain my actions.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

35. Ask for sacrifices from the people in my work group for the good of the entire section.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

36. Meet with my work group at regularly scheduled times.

____Always ____Often ____Occasionally ____Seldom ____Never

37. Stand up for the members of my work group, even though it makes me unpopular with others.

____Always ____Often ____Occasionally ____Seldom ____Never

38. Change the duties of the people in my work group without first talking it over with them.

____Often ____Fairly often ____Occasionally ____Once in a while ____Very seldom

39. Get the approval of my work group on important matters before going ahead.

____Always ____Often ____Occasionally ____Seldom ____Never

40. Criticize a specific act rather than a particular member of my work group.

____Always ____Often ____Occasionally ____Seldom ____Never

OPINION QUESTIONNAIRE

FORM B - PART II

Please fill in the following blanks. Our purpose in this part is to gain some background information about military and civilian personnel in the Air Force. Where applicable, round your answer to the nearest whole year.

Do not sign your name.

---

1. Your military rank or civilian grade _____

2. Male _____ Female _____

3. Your age _____

4. Number of years of formal education _____

5. For military supervisors only: Number of years of active military duty _____

6. For civilian supervisors only: Number of years that you have worked for the Air Force _____

7. Time assigned to or working at this base: A. Less than six months___
   B. Six months to one year___
   C. More than one year_____
   D. More than three years____
   E. More than six years_____

8. Number of years that you have worked as a supervisor _____

9. Number of persons you are presently <u>directly</u> supervising _____

10. Your legal residence or home of record: City _____

    State _____

APPENDIX C

OPINION QUESTIONNAIRE[1]

FORM C

This questionnaire is part of a study of the attitudes and opinions of Air Force military and civilian personnel on the subject of supervisory leadership. It is being made by a graduate student at the University of Washington.

This is not a test of any sort and there are no right or wrong answers to the statements that follow. It's your opinions and feelings that are important. The best answer to each statement is your personal opinion. Your answers will be treated with complete confidence. They will be known only to the person who is conducting this study and will not be available to any other person.

There are four parts to this questionnaire. Further instructions are furnished at the beginning of each part. Be sure to read these instructions carefully. The final value of this study will depend upon the frankness and care with which you answer the question implied in each statement.

Your participation in this study will be appreciated.

Do not turn the page until asked to do so.

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OPINION QUESTIONNAIRE

FORM C - PART I

We are aware that some of you work for military supervisors and some of you work for civilian supervisors. In this part of the questionnaire we want each of you to assume that you are working for a <u>military</u> supervisor. A list of statements have been prepared that may be used to describe the leadership behavior of Air Force supervisors. Although some of the statements may appear similar, they express differences that are important in the description of leadership behavior. Each statement should be considered a separate description. Read each of the following statements carefully. Think about how frequently or to what extent you would expect a <u>military</u> supervisor to engage in the behavior described by the statement. Place an "X" in the space preceding the answer you choose. Make sure you answer all the statements.

QUESTIONNAIRE ITEMS USED IN THIS PART

ARE THE SAME ITEMS USED IN FORM A, PART I

OPINION QUESTIONNAIRE

FORM C - PART II

Please fill in the following blanks. Our purpose here is to gain some background information about military and civilian personnel in the Air Force. Where applicable, round your answer to nearest whole year.

Do not sign your name.

---

1. Your military rank or civilian grade _____

2. Male _____ Female _____

3. Your age _____

4. Number of years of formal education _____

5. For military persons only: Number of years of active military duty

_____

6. For civilian persons only: Number of years that you have worked for the Air Force _____

7. Time assigned to or working at this base: A. Less than six months_____
B. Six months to one year___
C. More than one year_____
D. More than three years____
E. More than six years_____

8. Your immediate supervisor is: _____Military _____Civilian

9. Your legal residence or home of record: City _____

State _____

OPINION QUESTIONNAIRE

FORM C - PART III

In this part we are interested in finding out how familiar you are with certain slang words which are used by persons in the Air Force. Read each of the following statements carefully and then indicate, by placing an "X" in the appropriate blank, your understanding of the meaning or accepted usage of each of the slang words.

QUESTIONNAIRE ITEMS USED IN THIS PART

ARE THE SAME ITEMS USED IN FORM A, PART III

OPINION QUESTIONNAIRE

FORM C -- PART IV

We are aware that some of you work for military supervisors and some of you work for civilian supervisors. In this part of the questionnaire we want each of you to assume that you are working for a civilian supervisor. A list of statements have been prepared that may be used to describe the leadership behavior of Air Force supervisors. Although some of the statements may appear similar, they express differences that are important in the description of leadership behavior. Each statement should be considered a separate description. Read each of the following statements carefully. Think about how frequently or to what extent you would expect a civilian supervisor to engage in the behavior described by the statement. Place an "X" in the space preceding the answer you choose. Make sure you answer all the statements.

Do not refer back to other parts.

QUESTIONNAIRE ITEMS USED IN THIS PART

ARE THE SAME ITEMS USED IN FORM A, PART I

APPENDIX D

Relationships Between Background Characteristics of Superiors and Their Perceptions of the Leadership Role of the Military Supervisor

		Consideration r	Structure r
	MILITARY SUPERIORS (N = 50)		
1.	Age	.21	.19
2.	Education (years)	.01	-.16
3.	Years active military duty	.21	.23
4.	Years worked as supervisor	.24	.18
5.	Nr. persons directly supervised	.07	.25
6.	Nr. military persons directly supervised	.13	.28*
7.	Nr. civilian persons directly supervised	-.04	.07
8.	Years assigned to base	.19	.08
	CIVILIAN SUPERIORS (N = 50)		
1.	Age	.28*	-.08
2.	Education (years)	-.07	.11
3.	Years worked for Air Force	.17	-.05
4.	Years worked as supervisor	-.01	-.13
5.	Nr. persons directly supervised	.16	-.07
6.	Nr. military persons directly supervised	.13	-.03
7.	Nr. civilian persons directly supervised	.09	-.07
8.	Years worked at this base	.23	.03

*Significant at the .05 level of confidence.

APPENDIX E

Relationships Between Background Characteristics of Superiors and Their Perceptions of the Leadership Role of the Civilian Supervisor

	Consideration r	Structure r
MILITARY SUPERIORS (N = 50)		
1. Age	.19	.15
2. Education (years)	.03	-.30*
3. Years active military duty	.18	.15
4. Years worked as supervisor	.20	.10
5. Nr. persons directly supervised	.01	-.01
6. Nr. military persons directly supervised	.10	.18
7. Nr. civilian persons directly supervised	-.10	-.22
8. Years assigned to this base	.18	.11
CIVILIAN SUPERIORS (N = 50)		
1. Age	.30*	-.12
2. Education (years)	-.15	-.08
3. Years worked for Air Force	.17	.08
4. Years worked as supervisor	-.01	-.15
5. Nr. persons directly supervised	.14	-.19
6. Nr. military persons directly supervised	.10	-.06
7. Nr. civilian persons directly supervised	.10	-.19
8. Years worked at this base	.21	-.08

*Significant at the .05 level of confidence.

APPENDIX F

Relationships Between Background Characteristics and Leadership Attitudes of Military and Civilian Supervisors

		Consideration r	Structure r
	MILITARY SUPERVISORS (N = 50)		
1.	Age	-.25	.19
2.	Education (years)	.20	-.19
3.	Years active military duty	-.19	.25
4.	Years worked as supervisor	-.17	.09
5.	Nr. persons directly supervised	-.13	.19
6.	Years assigned to this base	.03	.14
	CIVILIAN SUPERVISORS (N = 50)		
1.	Age	.20	-.03
2.	Education (years)	.15	.12
3.	Years worked for Air Force	-.04	-.07
4.	Years worked as supervisor	.15	.00
5.	Nr. persons directly supervised	-.15	.03
6.	Years worked at this base	.01	-.04

APPENDIX G

Relationships Between Background Characteristics of Subordinates and Their Perceptions of the Leadership Role of the Military Supervisor

	Consideration r	Structure r
MIL WORKING FOR MIL SUPERVISOR (N = 25)		
1. Age	-.05	.22
2. Education (years)	.00	.09
3. Years active military duty	-.01	.26
4. Years assigned to this base	.03	.17
MIL WORKING FOR CIV SUPERVISOR (N = 25)		
1. Age	-.31	-.31
2. Education (years)	.15	-.28
3. Years active military duty	-.39	-.22
4. Years assigned to this base	-.21	-.11
CIV WORKING FOR MIL SUPERVISOR (N = 25)		
1. Age	.19	.04
2. Education (years)	-.01	-.03
3. Years worked for Air Force	-.04	.18
4. Years worked at this base	-.05	.09
CIV WORKING FOR CIV SUPERVISOR (N = 25)		
1. Age	.15	-.23
2. Education (years)	-.30	.23
3. Years worked for Air Force	.14	.28
4. Years worked at this base	.11	.17

APPENDIX H

Relationships Between Background Characteristics of Subordinates and Their Perceptions of the Leadership Role of the Civilian Supervisor

	Consideration r	Structure r
MIL WORKING FOR MIL SUPERVISOR (N = 25)		
1. Age	.04	.08
2. Education (years)	-.10	.06
3. Years active military duty	.12	.03
4. Years assigned to this base	.10	-.01
MIL WORKING FOR CIV SUPERVISOR (N = 25)		
1. Age	-.17	-.25
2. Education (years)	.08	-.13
3. Years active military duty	-.21	-.20
4. Years assigned to this base	-.15	-.14
CIV WORKING FOR MIL SUPERVISOR (N = 25)		
1. Age	.17	.21
2. Education (years)	.10	.14
3. Years worked for Air Force	.26	.09
4. Years worked at this base	.19	.05
CIV WORKING FOR CIV SUPERVISOR (N = 25)		
1. Age	-.07	-.29
2. Education (years)	.34	.20
3. Years worked for Air Force	.04	-.03
4. Years worked at this base	.07	-.11

APPENDIX I

Description of Codes Used to Designate Means and Variances of Consideration and Structure Scores

Code	Variable
	CONSIDERATION
1	Personal role of military supervisor by:
1.1	Military superiors
1.2	Civilian superiors
1.3	Superiors component
2	Personal role of civilian supervisor by:
2.1	Military superiors
2.2	Civilian superiors
2.3	Superiors component
3	Social role of supervisor position by:
3.1	Military superiors
3.2	Civilian superiors
3.3	Superiors component
	STRUCTURE
4	Personal role of military supervisor by:
4.1	Military superiors
4.2	Civilian superiors
4.3	Superiors component
5	Personal role of civilian supervisor by:
5.1	Military superiors
5.2	Civilian superiors
5.3	Superiors component
6	Social role of supervisor position by:
6.1	Military superiors
6.2	Civilian superiors
6.3	Superiors component

Code	Variable
7	Leadership attitudes of military supervisors
7.1	Consideration
7.2	Structure
8	Leadership attitudes of civilian supervisors
8.1	Consideration
8.2	Structure
9	Leadership attitudes of supervisor component
9.1	Consideration
9.2	Structure
	CONSIDERATION
10	Personal role of military supervisor by:
10.1	Military subordinates
10.2	Civilian subordinates
10.3	Subordinates component
11	Personal role of civilian supervisor by:
11.1	Military subordinates
11.2	Civilian subordinates
11.3	Subordinates component
12	Social role of supervisor position by:
12.1	Military subordinates
12.2	Civilian subordinates
12.3	Subordinates component
	STRUCTURE
13	Personal role of military supervisor by:
13.1	Military subordinates
13.2	Civilian subordinates
13.3	Subordinates component
14	Personal role of civilian supervisor by:
14.1	Military subordinates
14.2	Civilian subordinates
14.3	Subordinates component
15	Social role of supervisor position by:
15.1	Military subordinates
15.2	Civilian subordinates
15.3	Subordinates component

APPENDIX J

Description of Symbols Used in Statistical Tables

X: Individual score

N: Number of subjects in sample

ΣX: Sum of the individual scores

$\bar{X}$: Arithmetic mean of sample

ΣX^2: Sum of the squares of the individual scores

$(\Sigma X)^2$: Square of the sums of the individual scores

S^2: Total variance of the scores in the sample

Σx^2: Sum of the squared deviations of the scores in a sample from the sample mean score

D: Difference between paired scores

ΣD: Sum of the differences in the scores

$\bar{D}$: Arithmetic mean of the differences

ΣD^2: Sum of the squares of the differences

$(\Sigma D)^2$: Square of the sum of the differences

SD^2: Total variance of the differences

APPENDIX K

Formulae for Statistical Test of Significance

The formula used to test the significance of the difference between means for independent samples with pooled variance was:

$$t = \sqrt{\frac{N_1 N_2 \left[(N_1 + N_2) - 2\right] (\bar{X}_1 - \bar{X}_2)^2}{(N_1 + N_2)(\Sigma x_1^2 + \Sigma x_2^2)}}$$

Where the assumption of homogeneity of variance was found untenable, the following formula, which uses a separate group variance, was applied.

$$t = \frac{\bar{X}_1 - \bar{X}_2}{\sqrt{\frac{\Sigma x_1^2}{N_1(N_1-1)} + \frac{\Sigma x_2^2}{N_2(N_2-1)}}}$$

The formula used to test the significance of the difference between means for paired observations was:

$$t = \frac{\bar{D}}{\sqrt{\frac{S_D^2}{N}}}$$

The formula used to test the significance of the difference between variances was:

$$F = \frac{S_a^2}{S_b^2}$$ where S_a = predicted larger variance, S_b = predicted smaller variance

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[1]The reference for the formulae described on this page is James E. Wert, C. O. Neidt, and J. S. Ahmann, Statistical Methods in Educational and Psychological Research (New York: Appleton-Century Crofts, Inc., 1954), Chapter 8. The formulae are described above in modified form in order to provide for continuity in notation between the formulae and the basic data. See Appendix J for description of symbols.

Hypotheses VII and VIII were concerned with the significance of the difference between differences. The following statistical procedures were employed in testing these hypotheses.[2]

To determine the variance of the difference between mean scores:

$$S^2_{\bar{d}_1} = \frac{S_1^2}{N_1} + \frac{S_2^2}{N_2}$$

$$S^2_{\bar{d}_2} = \frac{S_1^2}{N_1} + \frac{S_3^2}{N_3}$$

To determine the variance of the difference between the differences:

$$S^2_{\bar{d}_1 - \bar{d}_2} = S^2_{\bar{d}_1} + S^2_{\bar{d}_2}$$

To determine the computed value of t:

$$t = \frac{\bar{d}_1 - \bar{d}_2}{\sqrt{S^2_{\bar{d}_1 - \bar{d}_2}}}$$

To estimate the number of degrees of freedom:

$$\text{d.f.} = \frac{S^2_{\bar{d}_1} + S^2_{\bar{d}_2}}{\frac{(S^2_{\bar{d}_1})^2}{N_1 + N_2 + 1} + \frac{(S^2_{\bar{d}_2})^2}{N_1 + N_3 + 1}} - 2$$

---

[2]These procedures were devised by Dr. John S. Y. Chiu, Department of Accounting, Finance, and Statistics, College of Business Administration, University of Washington. The author is indebted to Dr. Chiu for his assistance.

APPENDIX L

Data on Superiors' Perceptions of the Leadership Role of Military and Civilian Supervisors

Variable Code*	N	ΣX	$\bar{X}$	ΣX^2	$(\Sigma X)^2$	S^2	Σx^2
				CONSIDERATION			
1.1	50	4,364	87.28	384,150	19,044,498	66.53	3,260.08
1.2	50	4,328	86.56	379,040	18,731,584	89.97	4,408.32
1.3	100	8,692	86.92	763,190	75,550,864	77.59	7,681.36
2.1	50	4,327	86.54	377,595	18,722,929	64.01	3,136.42
2.2	50	4,413	88.26	394,427	19,474,569	100.73	4,935.62
2.3	100	8,740	87.40	772,022	76,387,600	82.28	8,146.00
3.1	50	4,346	86.91	380,666	18,883,370	61.20	2,998.84
3.2	50	4,370	87.41	386,234	19,101,270	85.89	4,208.84
3.3	100	8,716	87.16	766,900	75,968,656	72.87	7,213.94
				STRUCTURE			
4.1	50	2,735	54.70	152,065	7,480,225	50.21	2,460.50
4.2	50	2,644	52.88	142,912	6,990,736	63.21	3,097.28
4.3	100	5,379	53.79	294,977	28,933,641	56.98	5,640.59
5.1	50	2,616	52.32	139,384	6,843,456	51.32	2,514.83
5.2	50	2,624	52.48	140,850	6,885,376	64.13	3,142.48
5.3	100	5,240	52.40	280,234	27,457,600	57.15	5,658.00
6.1	50	2,675	53.51	145,427	7,158,300	46.14	2,260.74
6.2	50	2,634	52.68	141,491	6,937,956	55.76	2,732.38
6.3	100	5,309	53.09	286,918	28,190,790	50.61	5,010.25

*See Appendices I and J for description of codes and symbols.

APPENDIX M

Data on Leadership Attitudes of Military and Civilian Supervisors

Variable Code*	N	ΣX	$\bar{X}$	ΣX^2	$(\Sigma X)^2$	S^2	Σx^2
7.1	50	3,775	75.52	289,596	14,256,662	91.07	4,462.60
7.2	50	2,643	52.86	142,919	6,985,449	65.51	3,210.02
8.1	50	3,913	78.26	310,779	15,311,565	92.82	4,548.20
8.2	50	2,524	50.48	130,054	6,370,576	53.93	2,642.48
9.1	100	7,688	76.89	600,375	59,117,620	92.92	9,199.09
9.2	100	5,167	51.67	272,973	26,697,889	60.55	5,994.11

*See Appendices I and J for description of codes and symbols.

APPENDIX N

Data on Subordinates' Perceptions of the Leadership Role of Military and Civilian Supervisors

Variable Code*	N	ΣX	$\bar{X}$	ΣX^2	$(\Sigma X)^2$	S^2	Σx^2
				CONSIDERATION			
10.1	50	3,714	74.28	291,908	13,793,796	327.19	16,032.08
10.2	50	3,756	75.12	294,566	14,107,536	253.37	12,415.28
10.3	100	7,470	74.70	586,474	55,800,900	287.53	28,465.00
11.1	50	3,607	72.14	274,899	13,010,449	299.80	14,690.02
11.2	50	3,851	77.02	306,801	14,830,201	208.10	10,196.98
11.3	100	7,458	74.58	581,700	55,621,764	257.40	25,482.36
12.1	50	3,660	73.21	281,902	13,399,260	284.03	13,917.54
12.2	50	3,804	76.07	297,071	14,466,612	157.93	7,738.50
12.3	100	7,464	74.64	578,973	55,711,296	220.81	21,860.54
				STRUCTURE			
13.1	50	2,280	45.60	107,784	5,198,400	77.88	3,816.00
13.2	50	2,287	45.74	108,417	5,230,369	77.75	3,809.62
13.3	100	4,567	45.67	216,201	20,857,489	77.03	7,626.11
14.1	50	2,183	43.66	99,469	4,765,489	84.88	4,159.22
14.2	50	2,258	45.16	106,168	5,098,564	85.65	4,196.72
14.3	100	4,441	44.41	205,637	19,722,481	84.97	8,412.19
15.1	50	2,231	44.63	102,898	4,979,592	67.49	3,306.90
15.2	50	2,273	45.45	106,238	5,164,256	60.27	2,953.12
15.3	100	4,504	45.04	209,137	20,286,016	63.40	6,276.84

*See Appendices I and J for description of codes and symbols.

APPENDIX O

Data on Differences Between Means--Paired Observations

Mean Scores*		N						
X_1	X_2	X_1	X_2	ΣD	$\bar{D}$	ΣD^2	$(\Sigma D)^2$	S_D^2
1.1	2.1	50	50	153	3.06	825	23,409	7.28
1.2	2.2	50	50	215	4.30	1,997	46,225	21.89
1.3	2.3	100	100	368	3.68	2,822	135,424	14.83
4.1	5.1	50	50	193	3.86	1,191	37,249	9.10
4.2	5.2	50	50	194	3.88	1,558	37,636	16.43
4.3	5.3	100	100	387	3.87	2,749	149,769	12.64
10.1	11.1	50	50	347	6.94	6,003	120,409	73.36
10.2	11.2	50	50	537	10.74	14,451	288,369	177.22
10.3	11.3	100	100	884	8.84	20,454	781,456	127.67
13.1	14.1	50	50	273	5.46	2,911	74,529	28.99
13.2	14.2	50	50	327	6.54	4,217	106,929	42.42
13.3	14.3	100	100	600	6.00	7,128	360,000	35.64

*See Appendices I and J for description of codes and symbols.

APPENDIX P

Test of Significance of Differences Between Means With Respect to Consideration—Independent Observations

Mean Scores*		N			Observed	Level of
X_1	X_2	X_1	X_2	D	t	Significance**
1.1	1.2	50	50	0.72	.41	
1.1	10.1	50	50	13.00	4.63	.001
1.1	10.2	50	50	12.16	4.81	.001
1.2	10.1	50	50	12.28	4.25	.001
1.2	10.2	50	50	11.44	4.37	.001
1.3	10.3	100	100	12.22	6.40	.001
2.1	2.2	50	50	- 1.72	- .95	
2.1	11.1	50	50	14.40	5.34	.001
2.1	11.2	50	50	9.52	4.08	.001
2.2	11.1	50	50	16.12	5.70	.001
2.2	11.2	50	50	11.24	4.52	.001
2.3	11.3	100	100	12.82	6.96	.001
3.1	3.2	50	50	- 0.50	- .29	
3.1	12.1	50	50	13.70	5.21	.001
3.1	12.2	50	50	10.84	5.18	.001
3.2	12.1	50	50	14.20	5.22	.001
3.2	12.2	50	50	11.34	5.14	.001
3.3	12.3	100	100	12.52	7.31	.001
7.1	8.1	50	50	- 2.74	- 1.43	
10.1	10.2	50	50	- 0.84	- .25	
11.1	11.2	50	50	- 4.88	- 1.53	
12.1	12.2	50	50	- 2.86	- .96	

*See Appendices I and J for description of codes and symbols.
**Two-tailed test.

APPENDIX Q

Test of Significance of Differences Between Means With Respect to Structure---Independent Observations

Mean Scores*		N		D	Observed t	Level of Significance**
X_1	X_2	X_1	X_2			
4.1	4.2	50	50	1.82	1.21	
4.1	13.1	50	50	9.10	5.69	.001
4.1	13.2	50	50	8.96	5.60	.001
4.2	13.1	50	50	7.28	4.33	.001
4.2	13.2	50	50	7.14	4.25	.001
4.3	13.3	100	100	8.12	7.01	.001
5.1	5.2	50	50	- .16	- .11	
5.1	14.1	50	50	8.66	5.25	.001
5.1	14.2	50	50	7.16	4.33	.001
5.2	14.1	50	50	8.82	5.11	.001
5.2	14.2	50	50	7.32	4.23	.001
5.3	14.3	100	100	7.99	6.70	.001
6.1	6.2	50	50	.83	.58	
6.1	15.1	50	50	8.88	5.89	.001
6.1	15.2	50	50	8.06	5.53	.001
6.2	15.1	50	50	8.05	5.13	.001
6.2	15.2	50	50	7.23	4.75	.001
6.3	15.3	100	100	8.05	7.54	.001
7.2	8.2	50	50	2.38	1.54	
13.1	13.2	50	50	- .14	- .08	
14.1	14.2	50	50	-1.50	- .81	
15.1	15.2	50	50	- .82	- .51	

*See Appendices I and J for description of codes and symbols.
**Two-tailed test.

APPENDIX R

Test of Significance of Differences Between Means—Paired Observations

Mean Scores		N		D	Observed t	Level of Significance**
X_1	X_2	X_1	X_2			
1.1	2.1	50	50	.74	8.02	.001
1.2	2.2	50	50	-1.70	-6.50	.001
1.3	2.3	100	100	- .48	-9.56	.001
4.1	5.1	50	50	2.38	9.05	.001
4.2	5.2	50	50	.40	6.77	.001
4.3	5.3	100	100	1.39	10.89	.001
10.1	11.1	50	50	2.14	5.73	.001
10.2	11.2	50	50	-1.90	-5.70	.001
10.3	11.3	100	100	.12	7.32	.001
13.1	14.1	50	50	1.94	7.17	.001
13.2	14.2	50	50	.58	7.10	.001
13.3	14.3	100	100	1.26	10.05	.001

*See Appendices I and J for description of codes and symbols.
**Two-tailed test.

APPENDIX S

Test of Significance of Differences Between Means of Leadership Attitudes of Military and Civilian Supervisors and Superiors' and Subordinates' Perceptions of the Leadership Role of Military and Civilian Supervisors With Respect to Consideration--Independent Observations

Mean Scores*		N		D	Observed t	Level of Significance**
X_1	X_2	X_1	X_2			
7.1	1.1	50	50	-11.76	-6.63	.001
7.1	1.2	50	50	-11.04	-5.80	.001
7.1	1.3	50	100	-11.40	-7.27	.001
7.1	10.1	50	50	1.24	.43	
7.1	10.2	50	50	.40	.15	
7.1	10.3	50	100	.82	.32	
8.1	2.1	50	50	- 8.28	-4.68	.001
8.1	2.2	50	50	-10.00	-5.08	.001
8.1	2.3	50	100	- 9.14	-5.70	.001
8.1	11.1	50	50	6.12	2.18	.05
8.1	11.2	50	50	1.24	.51	
8.1	11.3	50	100	3.68	1.49	
9.1	3.1	100	50	-10.02	-6.37	.001
9.1	3.2	100	50	-10.52	-6.38	.001
9.1	3.3	100	100	-10.27	-7.98	.001
9.1	12.1	100	50	3.68	1.70	.10
9.1	12.2	100	50	.82	.44	
9.1	12.3	100	100	2.25	1.27	

*See Appendices I and J for description of codes and symbols.
**Two tailed test.

APPENDIX T

Test of Significance of Differences Between Means of Leadership Attitudes of Military and Civilian Supervisors and Superiors' and Subordinates' Perceptions of the Leadership Role of Military and Civilian Supervisors with Respect to Structure—Independent Observations

Mean Scores*		N			Observed	Level of
X_1	X_2	X_1	X_2	D	t	Significance**
7.2	4.1	50	50	-1.84	-1.21	
7.2	4.2	50	50	- .02	- .01	
7.2	4.3	50	100	- .93	- .69	
7.2	13.1	50	50	7.26	4.29	.001
7.2	13.2	50	50	7.12	4.21	.001
7.2	13.3	50	100	7.19	4.85	.001
8.2	5.1	50	50	-1.84	-1.27	
8.2	5.2	50	50	-2.00	-1.30	
8.2	5.3	50	100	-1.92	-1.48	
8.2	14.1	50	50	6.82	4.09	.001
8.2	14.2	50	50	5.32	3.18	.01
8.2	14.3	50	100	6.07	4.05	.001
9.2	6.1	100	50	-1.84	-1.42	
9.2	6.2	100	50	-1.01	- .76	
9.2	6.3	100	100	-1.43	-1.35	
9.2	15.1	100	50	7.04	5.13	.001
9.2	15.2	100	50	6.22	4.62	.001
9.2	15.3	100	100	6.63	5.96	.001

*See Appendices I and J for description of codes and symbols.
**Two-tailed test.

VITA

CHARLES RUSSELL HOLLOMAN, son of James A. and Mattie L. Holloman, was born on [redacted], in [redacted]. He was graduated from Enterprise Central High School in Enterprise, Mississippi, in December, 1944.

After service in the United States Army during World War II, he attended East Central Junior College and Mississippi State University. He married Lenora M. Strebeck in 1949.

He received a direct commission in the United States Air Force and was called to active duty in February, 1951. He is still in the United States Air Force and presently holds the rank of major.

He received a Bachelor of Arts in Social Studies from Colorado State College of Education in 1953 and a Master of Science in Business Administration from the University of Colorado in 1956.

He was assigned to the Department of Behavioral Sciences, United States Air Force Academy, in 1961. After serving at the Academy for two years as Assistant Professor of Behavioral Sciences, he entered the University of Washington in June, 1963.