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MARSH, MARTIN KEITH

THE MODERATING EFFECT OF ORGANIZATIONAL TYPE ON THE RELATIONSHIP BETWEEN LEADERSHIP STYLE AND ORGANIZATIONAL EFFECTIVENESS.

THE UNIVERSITY OF OKLAHOMA, PH.D., 1979

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GRADUATE COLLEGE

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A DISSERTATION

SUBMITTED TO THE GRADUATE FACULTY

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MARTIN KEITH MARSH

Norman, Oklahoma

1978

THE MODERATING EFFECT OF ORGANIZATIONAL TYPE ON

THE RELATIONSHIP BETWEEN LEADERSHIP STYLE

AND ORGANIZATIONAL EFFECTIVENESS

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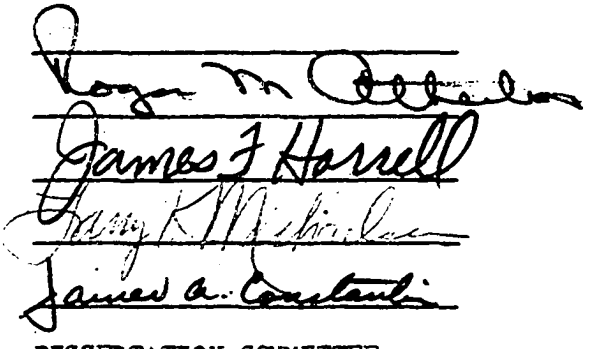

DISSERTATION COMMITTEE

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THE MODERATING EFFECT OF ORGANIZATIONAL TYPE ON THE RELATIONSHIP BETWEEN LEADERSHIP STYLE AND ORGANIZATIONAL EFFECTIVENESS

CHAPTER I

INTRODUCTION

Purpose of the Research

This study was designed as exploratory research to determine if organizational type has a moderating effect on the relationship between a leader's behavioral style and organizational effectiveness. The term organizational type refers here to a concept that has evolved from an early distinction by Burns and Stalker between "mechanistic", and "organic" organizational systems.[1] Mechanistic organizations are theorized to have different structural, process, and behavioral characteristics than organic organizations due to environmental influences. Mechanistic and organic organizational types demand, for effective performance, differing styles of leadership, according to various theories. The purpose of this study was to test whether or not organizational type moderates the

---

[1]Tom Burns and G. M. Stalker, The Management of Innovation (London: Tavistock, 1961), as cited in Charles Perrow, Organizational Analysis: A Sociological View (Belmont, Calif.: Brooks/Cole Publishing Co., 1947), pp. 37-47.

relationship between leadership style and subordinate satisfaction with leader performance, a commonly used criterion of organizational effectiveness.

The U. S. Army was chosen as the organization of study first, "because it was there." The Army had gathered a vast amount of data in a comprehensive leadership study in 1971 and was encouraging scholars in civilian organizations and universities to use the data for further research.[1] Second, because of the diversity of activities engaged in by the U. S. Army, ranging from combat operations to esoteric basic research relating to new weapons systems, it was believed that both mechanistic and organic types of organizations would be represented in the Army's data. Finally, the writer, a retiree from the Army after a twenty-one year career, had extensive knowledge about that service as well as high motivation to provide research information that might be used by the Army to enhance its long run effectiveness.

Leadership style was chosen as the subject for study because of a general widespread belief in the importance of leadership for organizational effectiveness.

The Importance of Leadership

From the earliest recorded history man has been aware of the importance of leadership as a critical element in organizing people for

---

[1]U. S., Department of the Army, Leadership for the 1970's (Carlisle Barracks, Pa.: U. S. Army War College, 1971), p. 32.

the accomplishment of group goals. From the very beginning men have sought means of selecting leaders and training people for leadership roles. From Samuel's divinely-ordered search for a leader of Israel[1], to Lincoln's seemingly endless quest for "one good general", to the American peole's quadrennial exercise in determining the national leadership, the problem has persisted. Since the terms "leadership" and "management" are often used synonymously, it is appropriate to distinguish clearly between the two.

Leadership and Management

"Management" is a relatively broad concept, descriptive of the activity engaged in by certain organization members when men, acting in groups, strive to control their environments. This idea is expounded by Wren, who sees management as evolving spontaneously from the cultural environment. The "general scarcity of resources and hostility in nature gives rise to economic, social, and political needs of man." To meet these needs man forms economic, social, and political organizations whose organized efforts require the application of management. Management is defined by Wren to mean "the activity which performs certain functions

---

[1] 1 Samuel: 16.

in order to obtain the effective acquisition, allocation, and utilization of human efforts and physical resources in order to accomplish some goal."[1]

Whereas the concept of management embraces both human and physical resources, the notion of leadership generally concerns only human resources. Thus, for the purpose of this research, leadership is viewed as a subset of the concept of management; leadership is only a part of the managerial job.[2] Hoefling presents a useful conceptual device to distinguish between the notions of management and leadership, as shown in Figure 1. Leadership involves "working with men," whereas management " . . . is working with both men and materials."[3] This idea is consistent with Wren's definition of management (above) and with the writings of many other contemporary scholars, including Fiedler, Davis, and Kast and Rosenzweig.[4] Figure 1 shows an "effectiveness" dimension that is applicable to both management

---

[1]Daniel A. Wren, The Evolution of Management Thought (New York: Ronald Press Company, 1972), pp. 9-11.

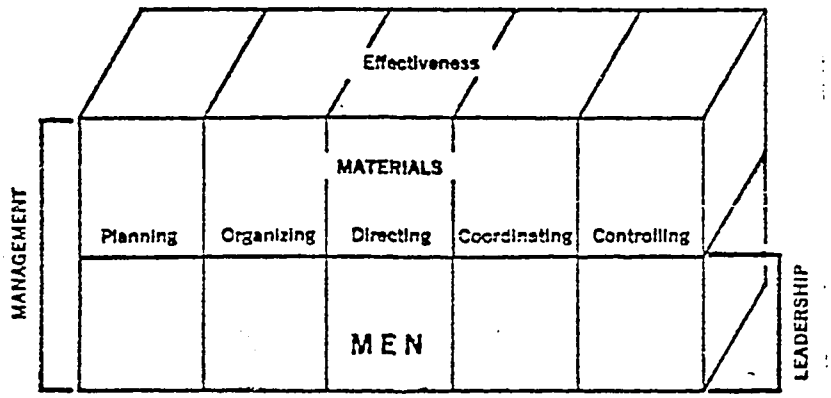
[2]Some scholars view leadership as a broader concept that management on the basis that leadership transcends the formal organization, whereas management is limited to an organizational context. See, for example, Paul Hersey and Kenneth H. Blanchard, Management of Organizational Behavior, 2d ed. (Englewood Cliffs, N. J.: Prentice-Hall, 1972), p. 4.

[3]John A. Hoefling, "Leadership, there is no 'right'way," Army (July 1970), pp. 31-38.

[4]Fred E. Fiedler and Martin M. Chemers, Leadership and Effective Management (Glenview, Ill.: Scott Foresman & Company, 19[illegible], pp. 5-6; Keith Davis, Human Relations at Work (New York: McGraw-Hill Book Co., 1967), pp. 96-97; and Fremont E. Kast and James E. Rosenzweig, Organization and Management (New York: McGraw-Hill Book Co., 1974), p. 341.

FIGURE 1-1

MANAGEMENT AND LEADERSHIP



SOURCE: Hoefling, p. 32.

and leadership. It is the search for effective management and effective leadership which has preoccupied man for so many years.

Since, according to Stogdill, "There are almost as many different definitions of leadership as there are persons who have attempted to define the concept," it appears appropriate at this point to settle on a single more or less generally accepted definition.[1] One broad definition which seems to include most of the schools of thought in the management literature is suggested by Stogdill: "the process (act) of influencing the

[1]Ralph M. Stogdill, Handbook of Leadership: A Survey of Theory and Research (New York: The Free Press, 1974), p. 7.

activities of an organized group in its efforts toward goal setting and goal achievement."[1]

The Accelerating Demand for Leaders

Finding people who can effectively "influence the activities of organized groups in their efforts toward goal setting and goal achievement" is getting increasingly difficult. With industrialization, the evolution of the corporate form, and the concomitant emergence of "big government," the demand for manager-leaders, in all segments of society, has grown so enormously that leadership ability, like America's natural resources, is fast becoming a scarce commodity. To compound the problem, as John B. Miner has pointed out, " . . . by the mid-1980's the major constraint on corporate growth will not necessarily be a shortage of monetary or material resources, but rather a shortage of managerial resources--there will not be enough good managers around to support continued, profitable expansion."[2] Miner attributes this serious shortfall to the increasing proportions of young people in our business schools and industry " . . . who lack the crucial will to manage."[3] Campbell et al. cite " . . . lowered

---

[1]Ralph M. Stogdill, "Leadership, Membership and Organization," Psychological Bulletin 47 (1950): 1-14. Stogdill apparently no longer subscribes to such a precise definition. While declining to offer a new definition to the ever growing catalog of definitions, Stogdill suggests (in his Handbook of Leadership) that "For purposes of theory development, it would seem reasonable to define leadership in terms of variables that account for the differentiation and maintenance of group roles."

[2]John B. Miner, "The Real Crunch in Managerial Manpower," Harvard Business Review 51 (Nov-Dec 1973): 146-58.

[3]Ibid., p. 147.

birthrates during the Depression . . . and losses of young men during World War II and the Korean War" as contributing to the crisis,[1] They further point out " . . . the need for a truly individualized approach to the task of managing managerial effectiveness--an approach which assumes that no single set of parameters is sufficient, and which demands knowledge of the many determiners of managerial effectiveness, knowledge to be used in developing individualized programs of managerial recruitment, selection, training, job design, and motivational enrichment."[2]

In effect, Campbell et al. are looking to theory as a means to alleviate this crunch in managerial manpower. But there is much to suggest that the state of theory in management and leadership precludes rapid progress in assimilating and integrating the knowledge that organizations require to develop adequate managerial development programs.

The General State of Leadership Theory

Essential to the resolution of this shortage of manager-leaders is the advancement of leadership theory. A prodigious number of studies have been published in the last fifty years (particularly in the last twenty years), studies which have given rise to a multitude of theories of leadership, all of which strive to identify determinants and explain the nature of leadership. Stogdill, in his recent Handbook of Leadership, cites over 3100 leadership research-related publications. Of these, 287 studies deal solely with

---

[1]John P. Campbell et al., Managerial Behavior, Performance and Effectiveness (New York: McGraw-Hill Co., 1970), p. 1.

[2]Ibid., p. 4.

specific leadership traits and characteristics and include only those studies in which a given trait or characteristic was studied by at least three investigators.[1]

Stogdill categorizes the many leadership theories under the following headings: (1) great man theories, (2) environmental theories, (3) personal-situational theories, (4) interaction-expectation theories, (5) humanistic theories, and (6) exchange theories.[2] But these theories are, to a large extent, contradictory. For example, the humanistic theorists (Argyris, Blake and Mouton, Likert, and McGregor) believe that "it is the function of leadership to modify the organization in order to provide freedom for the individual to realize his own motivational potential for fulfillment of his own needs and at the same time contribute toward the accomplishment of organizational goals."[3] The implication of the humanistic approach is that there is "one best way" to lead people. On the other hand, personal-situational and interaction-expectation theories suggest that the appropriate leadership style depends upon traits and motives of the leader, his subordinates, and his superiors as well as situational variables comprising the institutional context in which organization members interact.

Thus, controversy is characteristic of the present state of leadership theory. As expressed by George Strauss:

> Back in the mid-1950's there was very considerable agreement among a large number of academicians (including myself) as to the nature of effective supervision. . . . Today there is less hope of finding a single best pattern of supervision and increasing recognition of the liklihood that what constitutes effective leadership in a given situation is a function of organization mission, technology, personality, and culture, among other factors.

---

[1]Stogdill, Handbook, pp. 35-91, 431-581.

[2]Ibid., pp. 17-23. [3]Ibid., pp. 21-22.

> Further, there is little agreement as to the dimensions or measuring tools which are appropriate in describing supervisory style . . . .[1]

So, because of the contradictions in the literature and the multitude of theories to choose from, the practitioner of management is probably no better off today than he was twenty years ago. He still doesn't know how to identify potential leaders, nor does he know how to develop their unique potentialities in furtherance of organizational effectiveness. Filley and House summarize the situation bleakly: "When all is said and done, leadership remains one of the least understood aspects of the practice of management."[2]

Lewin is reported to have said: "Nothing is so practical as good theory."[3] What is needed at this stage in the development of leadership thought, in order to meet the accelerating needs of society for managers, is not more theory, but good theory, through the integration of conflicting theories, the explanation of existing inconsistencies and the sharpening of our conceptual tools. In this direction, and despite the pessimism cited above, an exciting new development has appeared on the scene which, according to Luthans, shows "potential" for " . . . leading management out of the

---

[1]George Strauss, "Organizational Behavior and Personnel Relations," in Woodrow L. Ginsburg, et al., A Review of Industrial Relations Research, Vol. 1 (Madison, Wis: Industrial Relations Research Association, 1970), p. 158.

[2]Allan C. Filley and Robert J. House, Managerial Process and Organizational Behavior (Glenview, Ill: Scott Foresman & Co., 1969), p. 416.

[3]Richard Beckhard, "Introduction," in The Professional Manager, by Douglas McGregor, edited by Warren G. Bennis and Caroline McGregor (New York: McGraw-Hill Book Co., 1967), pp. xv-xvi.

theory jungle."[1] That development is contingency theory, described below by Hicks and Gullett:

> . . . Contingency theory holds that different forms of organization designs and management styles are appropriate under differing circumstances. The challenge is the discovery of an appropriate model for a given situation. The future of organizational research lies in this direction.[2]

Kast and Rosenzweig describe the contingency approach as a "mid-range concept" that lies " . . . somewhere in between simplistic, universal principles [a one-best-way] and complex, vague notions ('it all depends')."[3] Elaborating, they define the contingency view as follows:

> The contingency view seeks to understand the interrelationships within and among subsystems as well as between the organization and its environment and to define patterns of relationships or configurations of variables. It emphasizes the multivariate nature of organizations and attempts to understand how organizations operate under varying conditions and in specific circumstances. Contingency views are ultimately directed toward suggesting organizational designs and managerial actions most appropriate for specific situations.[4]

Contingency theory is providing an approach which has great potential for reconciling inconsistent research and integrating conflicting theories.

---

[1]Fred Luthans, "The Contingency Theory of Management: A Path out of the Jungle," Business Horizons (June 1973), p. 72.

[2]Herbert G. Hicks and C. Ray Gullett, Organizations: Theory and Behavior (New York: McGraw-Hill Book Co., 1975), p. 429.

[3]Fremont E. Kast and James E. Rosenzweig, Contingency Views of Organization and Management (Chicago: Science Research Associates, 1973), p. 346.

[4]Kast and Rosenzweig, p. 313.

Researchers in the field of organizational leadership are in the vanguard of the contingency theory movement. In fact, Fiedler, who described his theory of leadership effectiveness as "The Contingency Model," has been credited with having " . . . probably provided the name for the contingency approach."[1]

The present research utilizes a contingency approach by seeking an answer to the research question: Does organizational type have a moderating influence on the relationship between leadership style and organizational effectiveness?

Scope of the Research

It is generally agreed that leadership style is a highly complex phenomenon, involving a multitude of interacting variables. Hersey and Blanchard, for example, see leadership style (leader behavior) as being influenced by a number of environmental variables (personalities of the leader, followers, superiors, peers, and the organization), expectation variables (expectations of the leader, followers, superiors, peers, and the organization), and other situational variables such as job demands and time.[2] According to Barrow, "Leadership Effectiveness research . . . should be oriented toward investigating the interactive relationships between leader behaviors, leader characteristic variables, and environmental

---

[1]Hicks and Gullett, p. 245.

[2]Hersey and Blanchard, pp. 109-112.

influences as related to specified criteria of effectiveness."[1] Barrow has cited fifteen environmental factors that have been shown in the research to influence leader behavior. Other scholars have identified different sets of situational variables.[2] Thus, there are innumerable variables that must be accounted for in conducting precise research on leader behavior. Such precision is beyond the scope of this study.

The various contingency approaches to leadership cited above appear to be reasonably well represented by the Campbell et al. model of managerial behavior.[3] Their model, shown below in Figure 1-2, suggests that the leader's job behavior is determined by individual characteristics, environmental factors, and feedback from resultant consequences of the leader's prior behaviors (expressed in terms of profitability, efficiency, and productivity).

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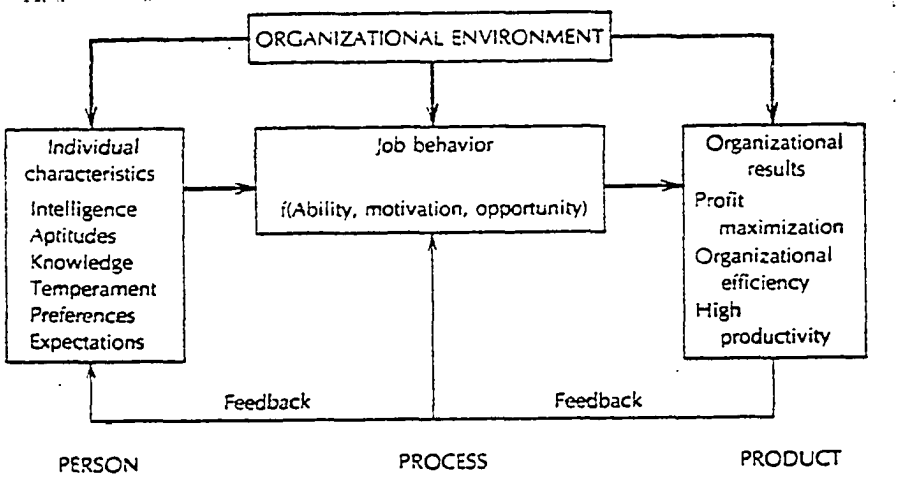
[1]Jeffrey C. Barrow, "Leadership Effectiveness in Complex Organizations: A Review and Integrative Framework," California State University, Chico, December, 1974, p. 28. (Typewritten).

[2]See, for example, Steven Kerr et al., "Toward a Contingency Theory of Leadership based upon the Consideration and Initiating Structure Literature," Organizational Behavior and Human Performance 12 (1974): 62-82; and Larry K. Michaelsen, "The Effects of Situational Conditions and Human Values on Leadership Behavior in Organizations: An Empirical Investigation," (Ann Arbor, Mich.: Institute for Social Research, 1973), pp. 18-27.

[3]Campbell et al., Managerial Behavior, pp. 10-13. These authors' concept of "management", described on page 1 as the effective direction of human effort, closely parallels the concept of "leadership" as defined in this study.

FIGURE 1-2

MODEL OF MANAGERIAL BEHAVIOR

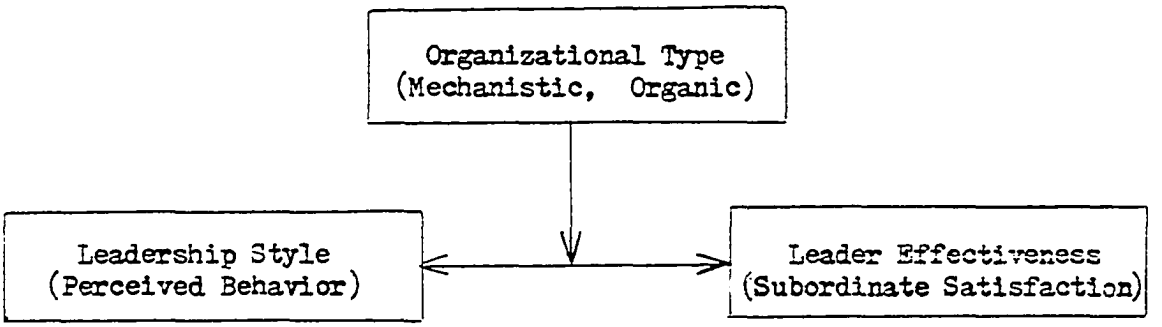


SOURCE: Campbell et al., Managerial Behavior, p. 11.

Figure 1-3 depicts the simple conceptual model upon which the present cross-sectional study is based. A single organizational environment variable, organizational type, is shown impinging on the relationship between leadership style and leader effectiveness. Individual characteristics are not incorporated into this exploratory, ex post facto research, nor are feedback effects, since the pertinent data were not collected by the Army in their study. Organizational type was measured by having a random sample of officers rate various Army functions and branches on a mechanistic-organic scale. Leadership style was measured in terms of subordinate perceptions of leader behavior based on the Ohio State dimensions of consideration and initiating structure. Leader effectiveness was measured as subordinate satisfaction with leader performance.

FIGURE 1-3

CONCEPTUAL MODEL



Research Contribution

This research is valuable for two reasons. The study contributes to leadership theory and, at the same time, provides some potentially valuable insights about leadership behavior that may have relevance to officer career development policy in the U. S. Army.

Contribution to Leadership Theory

Probably the most signficant contribution of this research to leadership theory is that it constitutes a test of the applicability of the contingency approach to leader behavior at the "macro" organizational level. Traditionally most leadership research has focused on the small work group, or the "micro" organizational level. Because micro-level work has been done in many different environments, the results of the research has been conflicting. Efforts to generalize findings have been largely unsuccessful.

Fiedler's work on the Contingency Model provided some clues that perhaps different organizations, or even different parts of organizations, might require different leadership styles.[1] Meanwhile, other researchers including Burns and Stalker, Perrow, Thompson, Pugh et al., and others were gaining similar contingency insights about other features of organizations; for example, environment, structure, and technology.[2] Lawrence and Lorsch, in their classic macro-level, three-industry study, tried to incorporate many of the contingency ideas into a single design. Their findings suggested the relevance of the Fiedler work on leadership at the macro organizational level.[3] Lorsch and Morse followed up with another macro-level study, supporting the Lawrence and Lorsch work and extending it by incorporating personal characteristics of organization members as contingent influences. They generalized their findings to a macro-level contingency model of leadership, which still requires testing in different environmental settings.[4]

Meanwhile, Kast and Rosenzweig, generalizing from the contingency ideas of Burns and Stalker and many other theorists and researchers, developed a comprehensive theoretical model of organizational systems,

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[1]Fred E. Fiedler, A Theory of Leadership Effectiveness (New York: McGraw-Hill Book Co., 1967).

[2]Kast and Rosenzweig, Contingency Views, pp. 26-287.

[3]Paul R. Lawrence and Jay W. Lorsch, Organization and Environment: Managing Differentiation and Integration (Homewood, Ill.: Richard D. Irwin, 1969), pp. 33-36.

[4]Jay W. Lorsch and John J. Morse, Organizations and Their Members: A Contingency Approach (New York: Harper & Row, 1974), pp. 111-44.

encompassing organizational structure, behavior, and processes.[1] Their macro-level ideas about the influence of organizational systems (or organizational type) on leader behavior were tested by Csoka and supported.[2] Csoka has emphasized the need for research with more diverse organizations, since his findings were based on small samples from "a very specialized organization which is highly structured and hierarchial."[3]

Except for the research and theory cited above, little has been done to test contingency ideas at the macro organizational level. Research on leadership at that level is particularly sparse. Part of this is due to the fact that the contingency approach constitutes a relatively new direction for leadership theory. But the major reasons are (1) the high cost and effort involved in conducting research on such a large scale, and (2) the difficulty in gaining access to organizations for purposes of research of this nature.

The availability of the Army's leadership data bank coupled with the eagerness of the Army to obtain assistance in the analysis of the data presented an excellent opportunity to test some of the evolving contingency ideas. The resultant design focused on the moderating effect of the macro variable, organizational type on the leader behavior/leader effectiveness relationship, as explained above. This research, then, is an extension of

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[1]Kast and Rosenzweig, Contingency Views, pp. 305-347.

[2]Louis Stephen Csoka, "The Effects of Organizational and Group Climate on Small Group Performance," (Ph. D. dissertation, University of Washington, 1972), pp. 46-49; 67.

[3]Ibid., pp. 69-70.

the Burns and Stalker/Kast and Rosenzweig/Lorsch and Morse line of thought, except that it focuses more on the leadership process. In addition, the Path-Goal Theory of Leadership is used as a basis for hypotheses about the differential effect of mechanistic and organic types of organizations upon the relationship between leader behavior and leader effectiveness.[1]

Contribution to the U. S. Army

If, as was theorized, organizational type does moderate the relationship between leader behavior and leader effectiveness, the research would have important implications for the Army. Such findings would indicate a need for reexamination of leadership doctrine and policies bearing on assignment, rotation, staffing, and career development. Further, regardless of the outcome, it was anticipated that this study would contribute to an awareness within the Army of possible implications of other potential contingency variables that need to be explored. Probably the most important of these, to the Army, is the moderating influence of combat on the leader behavior/leader effectiveness relationship. Toward this end, it was felt that regardless of the results, this contingency-oriented research would at least make the Army wary of its

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[1]Robert J. House, "A Path-Goal Theory of Leader Effectiveness," Administrative Science Quarterly 16 (September 1971): 321-28.

earlier generalizations derived from analysis of their aggregated data, where the only contingency variables examined were race and military rank.

Organization of the Dissertation

Subsequent chapters provide information that will assist the reader in understanding the research approach and evaluating the findings. Chapter II reviews the leadership literature from a number of perspectives including (1) "great man", (2) trait, (3) behavioral, (4) interaction, and (5) situational and contingency approaches. Chapter III discusses the importance of leadership in the military environment, summarizes the leadership research contributions of the American military establishment, and describes the Army's 1971 study that provided the data for the present study. The 1971 study is also evaluated based on the theory and research reviewed in Chapter II. In Chapter III research questions are posed, the answers to which may identify a heretofore unidentified problem in the Army--overreliance upon the "one-best-style" leadership doctrine.

Chapter IV describes the methodology of the study in terms of the general approach, the research focus, the research design, operational definitions, hypotheses, data analyses, and research constraints. The fifth chapter presents the research findings, while Chapter VI presents conclusions, implications for management, and recommendations for further research. Implications are discussed (1) for the U. S. Army, specifically and (2) for management in general. Similarly, specific recommendations for further research are provided for the U. S. Army and more general recommendations are provided for leadership researchers everywhere.

CHAPTER II

LEADERSHIP THEORY AND RESEARCH

The search for leaders, if it is to be pursued with any hope of success, must have a sound theoretical basis. This chapter reviews the various approaches that have been taken to the study of leadership to describe the current state of knowledge about leadership, and identify areas where further research should be concentrated.

The Great Man Approach

The origins of modern leadership theory may be found in the study of great men of history. The Great Man approach seeks to find universal characteristics of successful leadership by studying biographies of eminent leaders of history. Plutarch's Lives, biographies of great Greek and Roman heroes, has for centuries been a source of inspiration and guidance for leaders and would-be leaders.[1] The study of the "great captains" of history has served (and still serves) as a common approach to leadership by the military profession.[2]

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[1]For a recent version see Plutarch's Lives, ed. A. H. Clough, trans. Dryden, 5 vols. (Boston: Little, Brown & Co., 1924).

[2]See, for example, R. Ernest Dupuy and Trevor N. Dupuy, Military Heritage of America (New York: McGraw-Hill Book Co., 1956), pp. 3; 6; 25-71.

This approach to leadership theory is epitomized in the work of Thomas Carlyle who argued that "the history of what man has accomplished in this world, is at bottom the History of the Great Men who have worked here." His notion that "all sorts of Heroes are intrinsically of the same material" typifies the conceptual approach of traditional students of leadership theory in their quest of the grail.[1] By studying biographies of Great Men, the traditionalists strive to identify the intrinsic materials, the universalities which characterize outstanding leaders.

The Trait Approach

With the introduction of the scientific method into the study of psychology by Wilhelm Wunt, the search for common factors of leadership began to focus on psychological testing as an inductive means of isolating personality traits that characterized outstanding leaders.[2] Other scholars sought the same objective, the isolation of distinctive traits, deductively, by drawing on their accumulated experiences in business, education and the military.

General

The trait approach to leadership theory applies deductive and inductive methods of analysis in expectation of deriving generalized traits of personality and character that exemplify good (or bad) leaders. While

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[1]Thomas Carlyle, On Heroes, Hero-Worship, and the Heroic in History, ed. John Chester Adams (Boston: Houghton Mifflin & Co., 1907), pp. 1-2; 162.

[2]Wren, p. 196.

similar to the Great Man approach, trait theory tends to examine practicing leaders and focuses on a lower level of leadership than the former (organizational versus national). Thus, Barnard, drawing on his vast experience as a practicing administrator, deduced that five fundamental qualities or characteristics of those who are leaders are, in their order of importance: (1) vitality and endurance, (2) decisiveness, (3) persuasiveness, (4) responsibility, and (5) intellectual capacity.[1] Tead, basing his ideas on a "a wide study and observation of leaders," classified requisite traits under ten headings: (1) physical and nervous energy, (2) a sense of purpose and direction, (3) enthusiasm, (4) friendliness and affection, (5) integrity, (6) technical mastery, (7) decisiveness, (8) intelligence, (9) teaching skill, and (10) faith.[2]

Reviews of Trait Theory

Trait theory was significantly stimulated by the progress of the behavioral sciences during the first half of the Twentieth Century, which generated considerable activity in leadership research. One of the early research reviewers, Bird, surveyed twenty studies in leadership that bore "some resemblance to controlled investigations." He "culled" from the data some 79 traits that appeared to be related to leadership, and concluded that "Generally, leaders are more intelligent, more skillful in acquiring information and knowledge, more extroverted and more favored

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[1]Chester I. Barnard, "The Nature of Leadership," in Human Factors in Management, ed. Schuyler Dean Hoslett (New York: Harper & Bros., 1946), pp. 13-38.

[2]Ordway, Tead, The Art of Leadership (New York: Whittlesey House, 1935), pp. 82-114.

economically than those who are not leaders."[1] Stogdill, in 1948, exhaustively surveyed the literature relating to leadership "traits and personal factors" (124 studies) and identified a number of traits that "the average person who occupies a position of leadership exceeds the average member of his group in," including (1) intelligence, (2) scholarship, (3) dependability, (4) activity and social participation, (5) socio-economic status, (6) sociability, (7) initiative, (8) persistence, (9) knowing how to get things done, (10) self-confidence, (11) alertness to and insight into situations, (12) cooperativeness, (13) popularity, (14) adaptability, and (15) verbal facility. He also found " . . . low positive correlation between leadership and such variables as chronological age, height, weight, physique, energy, appearance, dominance, and mood control." He classified all the factors found to have been related to leadership under six categories: (1) capacity, (2) achievement, (3) responsibility, (4) participation, (5) status, and (6) the situation.[2]

Mann accomplished an even broader review that summarized the " . . . present state of knowledge about the relationship of an individual's personality to his behavior." He identified over 500 different personality variables, and classified them under seven dimensions that had been frequently isolated by factor analysis technique by various researchers. These seven dimensions are (1) intelligence, (2) adjustment,

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[1]Charles Bird, Social Psychology (New York: Appleton-Century Company, 1940), pp. 369-91.

[2]Ralph M. Stogdill, "Personal Factors Associated with Leadership: A Survey of the Literature," Journal of Psychology, 25 (1948): 35-71.

(3) extroversion-introversion, (4) dominance, (5) masculinity, (6) conservatism, and (7) interpersonal sensitivity. Mann found a positive relationship between leadership and each of the dimensions except "conservatism," which showed a negative relationship. (The relationship between "masculinity" and leadership was only a low positive one.)[1]

Bass, in his survey of leadership research, differentiated between personality traits, attitudes, and aptitudes and found (1) verbal aptitude, (2) intelligence, and (3) judgement, originality and adaptability to be aptitudes that were associated with leadership. Empathy and social sensitivity were attitudes associated positively with leadership, whereas personality traits that contributed to effective leadership were (1) authoritarianism, (2) persistence, (3) consistency, (4) self-confidence, (5) sociability, (6) need for achievement, and (7) dependability.[2]

Ghiselli, examining the literature dealing with the broader concept of management, concluded that " . . . the traits of intelligence, supervisory ability, initiative, self-assurance, and perceived occupational level" are " . . . important to managerial success."[3] (He defines "supervisory ability" as "leadership.") Similarly, Harrell and Harrell, in a longitudinal study, have identified numerous personality variables

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[1]Richard D. Mann, "A Review of the Relationships Between Personality and Performance in Small Groups," Psychological Bulletin 56 (July, 1959): 241-70.

[2]Bernard M. Bass, Leadership, Psychology, and Organizational Behavior (New York: Harper and Brothers, 1969), pp. 164-73.

[3]Edwin E. Ghiselli, "Managerial Talent," American Psychologist, 17 (October 1963): pp. 631-41.

that seem to have utility for predicting (1) high earnings for MBA's in big business, (2) high earnings for MBA's in small business, and (3) MBA's who will reach general management early.[1]

Gibb's grand review of leadership theory noted enough associations between personality traits and leadership ability to state that "Such findings make it abundantly clear that individual personality cannot be left out of the leadership picture." He cited evidence which showed positive relationships between leadership and (1) physical and constitutional factors--height, weight, physique, energy, health and appearance, (2) intelligence, and (3) personality traits--self-confidence, adjustment, dominance, extraversion-introversion, conservatism, and empathy or interpersonal sensitivity. Yet, he found it necessary to qualify his findings. He suggested for example, that leaders must not be <u>too</u> intelligent in relation to their followers, and, also, that in certain leadership situations, intelligence is not determining.[2]

End of the Road for Trait Theory?

In spite of the findings discussed above, many researchers are pessimistic about the prospects of a simplistic trait approach. For in-

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[1]Thomas W. Harrell, "The Personality of High Earning MBA's in Big Business," <u>Personnel Psychology</u> 23 (1969): 457-63; Thomas W. Harrell, "The Personality of High Earning MBA's in Small Business," <u>Personnel Psychology</u> 23 (1970): 369-75; and Thomas W. Harrell and Margaret S. Harrell, "The Personality of MBA's Who Reach General Management Early," <u>Personnel Psychology</u> 26 (1973): 127-34.

[2]Cecil A. Gibb, "Leadership," in <u>The Handbook of Social Psychology</u>, Vol. IV, ed. G. Lindzey and E. Aronson (Reading, Mass.: Addison-Wesley, 1969), pp. 205-82.

stance, Korman reviewed the leadership literature for the purpose of (1) determining the usefulness of various techniques for predicting leadership behavior and (2) determining what was known about psychological characteristics of effective leaders.[1] Although he failed to clearly distinguish between leaders and managers, he used a relatively rigorous approach, incorporating in his review only that research which used predictive validity criteria (as opposed to current validity). Korman concludes that "psychometric prediction" methods compared unfavorably with "judgmental prediction" and, with respect to the former, found:

> . . . not much research to speak of and what there is promises little. . . . There seems little reason for thinking that we have learned much about the psychological variables indicative of managerial behavior insofar as these variables are determinable by objective personality inventories.[2]

Even the commonly isolated intelligence characteristic was found to be only " . . . a fair predictor of first-line supervisory performance but not of higher-level managerial performance."[3]

Others mirror Korman's pessimism. Fiedler and Chemers state that " . . . leadership traits, or any personality traits, are not likely to have a large influence on the performance of different leadership tasks."[4] Gibson and associates also disparage the trait approach because (1) the subordinate is ignored, (2) there is no way to assign relative importance

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[1]Abraham Korman, "The Prediction of Managerial Performance, A Review," Personnel Psychology 21 (1968): 295.

[2]Ibid., p. 302. [3]Ibid., p. 319. [4]Fiedler and Chemers, p. 28.

to the ever-growing list of leader characteristics identified, (3) the research evidence is inconsistent, and (4) the approach does not allow one to generalize from situation to situation.[1] Scott and Mitchell interpreted the reviews by Stogdill and Mann (cited above) and another by Gibb in 1954 as discouraging the trait approach.[2] Their general conclusion is that " . . . the attainment of a leadership position is influenced by personality variables to a small degree and probably much less than is believed by most laymen."[3] Filley and House place a similar interpretation on the early reviews of trait theory:

> The results of the research reported by Bird (1940), Jenkins (1947), Stogdill (1948), and Gibb (1954) cast serious doubt on the validity of the proposition that there exists a finite number of traits characteristic of successful, effective leaders. Although the research demonstrates clearly that there are specific personality traits associated with leadership effectiveness in specific situations it does not demonstrate that there is a finite number of traits or that they always differentiate successful from unsuccessful leaders.[4]

Similarly, Gibb, in his 1969 review, concluded that "reviews such as those of Stogdill and Mann reveal that numerous studies of the personalities of leaders have failed to find any consistent pattern of traits which characterize leaders."[5]

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[1]James L. Gibson et al., Organizations: Structures, Processes, Behavior (Dallas, Tex.: Business Publications, 1973), pp. 295-96.

[2]William G. Scott and Terance R. Mitchell, Organization Theory (Homewood, Ill.: Richard D. Irwin, 1972), p. 226.

[3]Ibid., p. 228. [4]Filley and House, p. 412.

[5]Gibb, "Leadership", p. 227.

New Hope for Trait Theory

Stogdill updated his survey of the literature on the trait approach in 1974 and took exception to the negative interpretations of the earlier surveys.

> The reviews by Bird, Jenkins, and Stogdill have been cited frequently as evidence in support of the view that leadership is entirely situational in origin and that no personal characteristics are predictive of leadership. This view seems to over-emphasize the situational, and underemphasize the personal nature of leadership.[1]

He reviewed 163 additional studies, and classified relevant leader characteristics under six headings: (1) physical characteristics, (2) social background, (3) intelligence and ability, (4) personality, (5) task-related characteristics, and (6) social characteristics. In all, he identified 19 characteristics which appeared in the two reviews (1948 and 1970) and which showed only positive (significant) relationships with leader ability.[2] His broad conclusions were:

> The leader is characterized by a strong drive for responsibility and task completion, vigor and persistence in pursuit of goals, venturesomeness and originality in problem-solving, drive to exercise initiative in social situations, self-confidence and sense of personal identity, willingness to accept consequences of decision and action, readiness to absorb interpersonal stress, willingness to tolerate frustration and delay, ability to influence other person's behavior, and capacity to structure social interaction systems to the purpose at hand.[3]

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[1] Stogdill, Handbook, p. 72.

[2] Ibid., pp. 73-81. [3] Ibid., p. 81.

Stogdill would have us look for "clusters" of personality characteristics which " . . . differentiate (1) leaders from followers, (2) effective from ineffective leaders, and (3) higher echelon from lower echelon leaders."[1]

Such ideas as these are being applied by an increasing number of reputable organizations in the "assessment center" approach to management selection and development. Derived from the selection techniques of the Office of Strategic Services (GSS) in World War II, the assessment center combines psychometric testing with clinical evaluation to appraise characteristics and behavior of managerial candidates, usually under the direction of accredited psychologists.[2] Many assessment centers serve, also, as research centers where empirical data is accumulated and analyzed in order to identify characteristics that distinguish successful from unsuccessful managers in given organizations.[3] Korman suggests that "judgmental prediction methods, as exemplified particularly by executive assessment centers and peer ratings . . ." are promising approaches to the prediction of managerial success.[4]

Along these same lines, one cannot completely ignore the wisdom of individual leaders whose generally recognized successes are due, in

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[1]Ibid., p. 81. [2]Campbell, et al., p. 36.

[3]See, for example, Douglas W. Bray, et al., Formative Years in Business (New York: John Wiley and Sons, 1974); and V. Jon Bentz, "The Sears Experience in the Investigation, Description, and Prediction of Executive Behavior," in Measuring Executive Effectiveness, ed. Frederick R. Wickert and Dalton E. McFarland (New York: Appleton-Century Crofts, 1967), pp. 147-205.

[4]Korman, "Managerial Performance", p. 319.

no small part, to their unique abilities to select and develop subordinates with above average leadership performance. Such leaders, through deductive processes, apparently have distilled trait-oriented concepts that have had real utility within their unique organizational environments. For example, General Omar N. Bradley, in an address at the U. S. Army War College in 1971, insisted that among other things, mental and physical energy, human understanding and consideration for others, stubbornness (sometimes), self-confidence, imagination, and character (high ideals and trustworthiness) are requisites of military leadership.[1]

Through each of the major reviews of trait theory discussed above, one major theme consistently emerged to explain inconsistencies in findings and sustain interest in the trait approach as a means of describing, explaining and predicting effective leadership behavior in organizations. That recurring theme is the influence of the situation on the relationship between leadership and the various personality characteristics examined. In his summary statement of the relation between personality traits and leadership, Gibb concludes:

> The traits of leadership are any or all of those personality traits which, <u>in any particular situation</u>, enable an individual to (1) contribute significantly to group locomotion in the direction of a recognized goal and (2) be perceived as doing so by fellow group members. . . . there is abundant evidence that member personalities do make a difference to group performance, and there is every reason to believe that they do

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[1]U. S., Department of the Army, <u>Leadership for the 1970's</u>, pp. iii-v.

affect that aspect of the group's behavior to which the leadership concept applies.[1]

The emergence of situational thinking in leadership theory will be reviewed below, after examination of the behavioral, interaction, exchange, and expectancy approaches.

The Behavioral Approach

The behavioral approach to the study of leadership focuses on how the leader behaves, as opposed to what the leader is (as under trait theory). This school of thought strives to identify relevant behaviors, or clusters of behaviors, which serve to differentiate between effective and ineffective leaders. Scientific Management provided a basis for the traditional approach to identifying effective leader behaviors.

The Traditional Behavioral Approach

The traditional behavioral approach to leadership, stemming from Frederick Taylor's concept of Scientific Management, is based on the idea that management's responsibility is to (1) break the total operation into simple tasks, (2) develop the best way to carry out each of the tasks, (3) hire people with appropriate aptitudes and skills to perform each of these tasks, (4) train these people to do their respective tasks in the specified way, (5) provide supervision to see that they perform their

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[1]Gibb, "Leadership", p. 227.

designated tasks, using the specified procedure and at an acceptable rate, and (6) where feasible, use incentives in the form of piece rates.[1]

Likert describes the leadership required by such a model as "production-centered."[2] Filley and House have described this type of leadership as "instrumental" behavior, in which the effective leader is a man who performs the "instrumental functions" of "planning, organizing, coordinating, directing, and controlling the work of his subordinates."[3]

While this approach to leadership dominated management thought for several decades subsequent to the Scientific Management revolution, the Hawthorne studies and other behavioral research brought to light certain dysfunctions associated with an overemphasis on instrumental behavior. One such research effort was the White and Lippitt study.

The White and Lippitt Study

This study examined the varying effects of autocratic, laissez-faire, and democratic leadership styles on the activities of several groups of elementary school aged boys. The researchers found that the groups subjected to democratic leadership tended to be more satisfied and creative, and sustained work-related activities, even in the absence of the leader. The autocratically-led groups, though more productive quantitatively, were

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[1]Rensis Likert, New Patterns of Management (New York: McGraw-Hill Book Co., 1961), p. 6.

[2]Ibid., p. 7.

[3]Filley and House, p. 405.

characterized by low quality work, low satisfaction, and aggressive reaction to leaders. Laissez-faire groups produced less, and what they did produce was of poorer quality.

The White and Lippitt study stimulated research on leader behavior by showing that manipulation of leadership styles induces differential subordinate behaviors that have implications for organizational effectiveness.[1] This behavioral approach to the study of leadership was extended by the Lewin-inspired Research Center for Group Dynamics in a series of studies that have come to be known as the Michigan leadership studies.

The Michigan Leadership Studies

The Michigan leadership studies evolved out of a much broader 10 year interdisciplinary program, a "Human Relations Program" begun in 1947 with the objective "To discover the underlying principles applicable to the problems of organizing and managing human activity." The research program was characterized by survey methodology applied in

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[1]Kurt Lewin et al., "Patterns of Aggressive Behavior in Experimentally Created Social Climates," Journal of Social Psychology 10 (1939): 271-99; Ralph White and Ronald Lippitt, "Leader Behavior and Member Reaction in Three Social Climates," in Group Dynamics: Research and Theory, 2d ed., ed. Dorwin Cartwright and Alvin Zander (Evanston, Ill.: Row, Peterson & Co., 1960), pp. 527-53; Ronald Lippitt and Ralph K. White, "An Experimental Study of Leadership and Group Life," in Readings in Social Psychology, 3d ed., ed. Eleanor Maccoby et al. (New York: Holt, Rinehart and Winston, 1958), pp. 496-511.

large, on-going organizations, and was heavily supported by the U. S. Navy's Office of Naval Research.[1]

Both centers of the University's Institute for Social Research were eventually involved in the program, the Survey Research Center, and the Research Center for Group Dynamics.[2] With respect to the leadership-oriented projects, the emphasis was on small group leadership (the foreman level) in industrial organizations. The purpose was to identify those leader behaviors which contributed toward high productivity and high subordinate satisfaction.[3]

One of the pioneer studies took place in an insurance company in which the authority structure of one department was modified experimentally by (1) providing tighter managerial control in two divisions of the department--the "hierarchically controlled program," and (2) eliminating one level of supervision in two other divisions--the "autonomous program." The researchers found that productivity increased in both programs, but that turnover and dissatisfaction was significantly higher in the hierarchically controlled program. It was conjectured by the researchers that had the programs continued, productivity in the hierarchically

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[1]Angus Campbell, "Development and Future Plans of the Human Relations Program," in Groups, Leadership and Men, ed. Harold Guetzkow (New York: Russell & Russell, 1951), pp. 100-105.

[2]Likert, New Patterns, p. vii.

[3]T. O. Jacobs, Leadership and Exchange in Formal Organizations (Alexandria, Va.: Human Resources Research Organization, 1970), pp. 35-36.

controlled program would have diminished significantly over the long run.[1] The generalizations derived from this experiment and from follow-on studies, in section gangs on a railroad and work groups in a tractor factory, are that the most effective work groups are led by superiors who (1) differentiate their role from those of their subordinates by devoting more time to planning, on-the-job training, communicating with relevant others, and motivating subordinates, (2) exercise general supervision as opposed to close supervision, (3) are employee-oriented instead of production-oriented, and (4) develop highly cohesive work groups.[2]

In the tractor factory experiments the researchers had found that the most effective foremen were those who rated high on both employee orientation and production orientation. In other words, the two concepts were mutually dependent and could be viewed as orthogonal dimensions.[3] This idea tended to support independent findings by two Harvard researchers, who studied leader behavior in small groups and identified two types of behavioral characteristics of leaders — socioemotional (or group maintenance) leadership and task leadership.[4]

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[1]Daniel Katz and Robert L. Kahn, The Social Psychology of Organizations (New York: John Wiley and Sons, 1966), pp. 425-33; and Robert L. Kahn and Daniel Katz, "Leadership Practices in Relation to Productivity and Morale," in Group Dynamics, ed. Cartwright and Zander, pp. 554-70.

[2]Kahn and Katz, "Leadership Practices," pp. 554-70.

[3]Jacobs, p. 40.

[4]R. F. Bales and P. E. Slater, "Role Differentiation in Small Groups," in Family, Socialization, and Interaction Process, ed. T. Parsons et al. (Glencoe, Ill.: Free Press, 1955), pp. 259-306; and R. F. Bales, "Task Roles and Social Roles in Problem Solving Groups," in Readings in Social Psychology, 3d ed., ed. Maccoby et al., pp. 437-47.

In general, the emphasis of the Michigan researchers was on the employee orientation dimension. More recent efforts of University of Michigan researchers on the study of leadership will be discussed below as a contingency theory of leadership.

While the Michigan group of researchers were pursuing their experimentation with small work groups, another major research effort was under way at Columbus, Ohio.

The Ohio State Studies

Like the contemporary work at Michigan, the Ohio State studies, commencing in 1945, were planned as a ten year interdisciplinary program. However, the studies were narrower in scope, and focused on the concept of leadership in business, military, and educational institutions. The objectives were to develop research methods and obtain facts that would (1) contribute toward a better understanding of leadership and (2) facilitate the education, selection, training and assignment of individuals for positions of leadership. Like the Michigan program, much of the early work was accomplished under contract with the U. S. Navy, Office of Naval Research, but the Rockerfeller Foundation and the U. S. Air Force Human Resources Research Laboratory also contributed financial support for the work.[1]

The Ohio State researchers concentrated at first on the study of leader behavior at higher echelons of the organization, and they defined

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[1]Carrol L. Shartle, "Studies in Naval Leadership: Part I," in Groups, Leadership and Men, ed. Harold Guetzkow, pp. 119-33.

a leader as "an individual in a given office or position of apparently high influence potential."[1] Instead of studying the small work group, the concern of the Ohio State researchers, at least during the early years of the program, was the macro-organizational level. Thus, for example, they compared leadership between different ships and between different classes of ships (submarines and LST's), differences between naval and industrial organizations, and differences between job specialties within and between different organizations.[2]

The early studies. The early emphasis of the Ohio State studies was on determining what leaders did, in terms of inspection, planning, etc. Also, the researchers measured and compared relative levels of responsibility, authority, and delegation, and studied the environments in which leaders operated. The principle thrust of the environmental studies involved the study of formal organization charts; sociometric ratings; group morale and effectiveness; work group dimensions (autonomy, homogeneity, viscidity, etc.); and status, attitudes, and perceptions.[3] Other methods used in the early work were interviews; responsibility, authority, and delegation (RAD) scales; work analysis forms; effectiveness ratings; and leader behavior descriptions.[4] The major generalizable

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[1]Ibid., p. 122.

[2]Ralph M. Stogdill and Carroll L. Shartle, Patterns of Administrative Performance (Columbus, Ohio: Ohio State University, 1956).

[3]Shartle, pp. 122-29.

[4]Ralph M. Stogdill and Carroll L. Shartle, Methods in the Study of Administrative Leadership (Columbus, Ohio State University, 1955), pp. 1-4.

findings of the early studies were summarized by Shartle as shown in Figure 2-1.

FIGURE 2-1

SHARTLE'S GENERALIZATIONS

1. Leader behavior can be described reliably in quantitative terms.

2. Group behavior can be described reliably in terms of independent dimensions.

3. Subordinates tend to maintain stereotypes of ideal leader behavior in which the ideal leader makes few demands on the individual.

4. When the leader describes himself, his description is nearer the subordinate's ideal than it is to the subordinate's description of the actual behavior of the leader.

5. The superior and subordinate of a leader tend to be in closer agreement concerning the leader's behavior than either are to the leader's self-perception.

6. Subordinates of leaders who delegate tend to delegate more themselves.

7. Communications is an important factor in leadership in that better communications reduces the discrepancy between self and subordinate reports of leader behavior.

8. Status attitudes of a leader are related to his behavior in a leadership role.

SOURCE: Carroll L. Shartle, "Studies in Naval Leadership," pp. 130-32.

Studying "how" leaders behave. The approach to leadership that eventually captured the attention of the academic community was the one which examined how the leader performs his role. Although this approach was an essential aspect of the earlier studies, more and more resources of the Ohio State program began to be focused on the identification and refinement of two independent dimensions which jointly were found to account for up to 83% of the variance in leader behavior.[1] The "geneology" of the various Ohio State leader behavior instruments that evolved is shown in Figure 2-2.

The initial impetus for the search for generalized dimensions of leader behavior was provided by Hemphill. He sought to develop a generalized leader description instrument to explain how leaders perform their leadership roles. Starting with 9 a priori dimensions, he had "advanced" college students write 1790 items that seemed to measure those dimensions. The 1790 items were screened, combined, edited, and rewritten as deemed appropriate by an interdisciplinary group of researchers. The dimensions were redefined and the number of items reduced to 150, after which an exploratory questionnaire was administered to 357 summer school college students. Factor analysis of the resulting data identified three major factors: Factor I, maintenance of member character; Factor II, objective attainment behavior; and Factor III, group interaction facilitation.[2]

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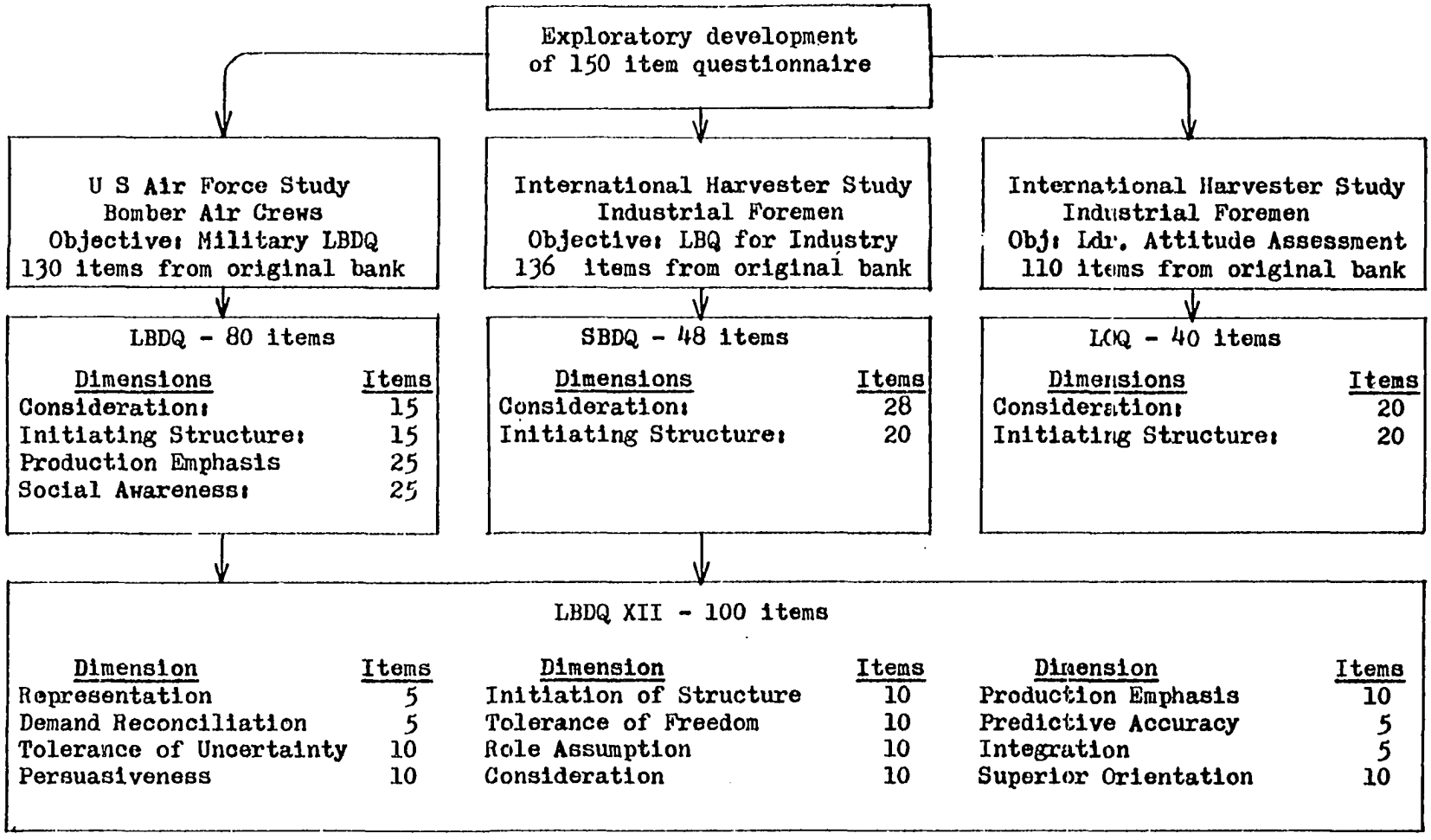
[1]Andrew W. Halpin and B. James Winer, "A Factorial Study of Leader Behavior Descriptions," in Leader Behavior: Its Description and Measurement, ed. Ralph M. Stogdill and Alvin E. Coons (Columbus, Ohio: Ohio State University, 1957), pp. 40-44.

[2]John K. Hemphill and Alvin E. Coons, "Development of the Leader Behavior Description Questionnaire," in Leader Behavior, ed. Stogdill and Coons, pp. 6-38.

FIGURE 2-2

GENEOLOGY OF OHIO STATE LEADER BEHAVIOR INSTRUMENTS



SOURCE: Adapted from Stogdill and Coons, Leader Behavior: It's Description and Measurement.

Using 130 items selected from the original bank of 150, classified under eight a priori dimensions, and modified to fit the military environment, Fleishman conducted a study of U. S. Air Force bomber crews. Using factor analysis, he identified four distinct factors: (1) consideration, (2) initiating structure, (3) production emphasis, and (4) social awareness. Based on this analysis an 80-item "Leader Behavior Description Questionnaire (LBDQ)" was developed. Because the first two factors (consideration and initiating structure) accounted for 83 per cent of the variance in leader behavior, only the 15 consideration (C) and 15 initiating structure (IS), items were scored in the resulting 80 item LBDQ. Eventually a 40 item "short form" emerged containing the fifteen C and IS items and ten unscored "buffer" items from the earlier version.[1]

Subsequently, Fleishman, with the objective of developing an industrial version of the LBDQ, conducted a study of the behaviors of 122 foremen at the International Harvester Company using an instrument comprised of 136 items from the original bank. Consistent with the Halpin and Winer findings, two independent factors, C and IS were identified through factor analysis. Based on these findings, the "Supervisory Behavior Description Questionnaire (SBDQ)" was developed consisting of 28 Consideration items and 20 Initiating Structure items.[2]

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[1]Andrew W. Halpin and B. James Winer, "A Factorial Study of the Leader Behavior Descriptions," in Leader Behavior, ed. Stogdill and Coons, pp. 39-51.

[2]Edwin A. Fleishman, "A Leader Behavior Description for Industry," in Leader Behavior, ed. Stogdill and Coons, pp. 102-119.

The "Leadership Opinion Questionnaire (LOQ)" was designed to measure the leader's attitudes about how he ought to behave. The LOQ instrument was derived from research conducted by Fleishman at seventeen different International Harvester Company plants. One hundred foremen were administered a questionnaire which incorporated 110 items from the original exploratory bank of 150 items. The original items were revised to express the leader's normative opinions concerning proper leader behavior. Based on "response distributions" of the 110 items in the International Harvester study and "the factor loadings . . . of parallel items on the Supervisory Behavior Description," forty items were selected to comprise the LOQ, including 20 Consideration and 20 Initiating Structure items.[1]

Dissatisfied with the notion that leader behavior could be adequately described in terms of only two dimensions, and building conceptually from his theory of role differentiation and group achievement and reviews of the literature, Stogdill, in 1963, developed a more sophisticated version of the LBDQ.[2] His LBDQ-Form XII describes leader behavior in terms of 12 dimensions of behavior (shown in Figure 2-2), including the well known dimensions C and IS. Form XII has been extensively used and, according to Stogdill, empirical research has generally supported the theoretical soundness of the "multifactor approach" as opposed to

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[1]Edwin A. Fleishman, "The Leadership Opinion Questionnaire," in Leader Behavior, ed. Stogdill and Coons, pp. 120-33.

[2]Ralph M. Stogdill, Individual Behavior and Group Achievement (New York: Oxford University Press, 1959), pp. 12-14, 273-90; and Ralph M. Stogdill, Manual for the Leader Behavior Description Questionnaire - Form XII (Columbus, Ohio: Ohio State University, 1963), pp. 1-2.

the "two-factor solution."[1] Nevertheless, the earlier two-factor forms continue to be used extensively.

Stogdill's summary of the generalizable research findings, pertaining to the Ohio State dimensions C and IS, is shown in Figure 2-3. However, his analysis was less rigorous than the earlier review by Korman of the research literature dealing with the relationship between C and IS and criteria of organizational effectiveness. Korman arrived at different conclusions. Based on his examination of 7 "criterion-oriented" studies involving the use of the LOQ instrument and 7 "criterion-oriented" studies that used the LBDQ, Korman concluded that " . . . there is very little evidence that leadership behavioral and/or attitudinal variation, as defined by scores on the Leadership Behavior and Leadership Opinion Questionnaires, are predictive of later effectiveness and/or satisfaction criteria." He called for systematic research to identify situational variables that may influence the effects of C and IS on performance.[2] Further discussion of theory and research involving C and IS will be provided below under situational approaches and contingency theory.

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[1]Stogdill, Handbook, pp. 142-55.

[2]Abraham K. Korman, "Consideration, Initiating Structure, and Organizational Criteria--A Review," Personnel Psychology 19 (1966): 349-61.

FIGURE 2-3

GENERALIZED FINDINGS CONCERNING CONSIDERATION AND INITIATING STRUCTURE

1. The most effective leaders are high on both C and IS.
2. Superiors' and subordinates' descriptions of C are both related to leader effectiveness ratings in industrial situations.
3. Both C and IS are positively related to group cohesiveness and harmony.
4. IS is related to group unity.
5. C is related to low absenteeism, grievances, turnover, and bureaucracy.
6. Leaders' attitudes toward C and IS are not highly related to any measures of leader effectiveness.
7. Discrepancies between expected (ideal) and observed (real) behavior are highly and negatively related to measures of group behavior and member satisfaction.
8. Group productivity is more highly related to structure than to consideration.
9. Member satisfaction is more highly related to consideration than to structure.

SOURCE: Stodgill, Handbook, pp. 140-41, 395-97.

The Managerial Grid Approach

The Managerial Grid Approach assumes that managerial attitudes toward leadership result in consistent patterns of managerial action,

or behavior. The theory was derived deductively from the work of numerous researchers and theorists in the leadership field.[1]

The grid concept describes managers in terms of two attitudes (or dimensions), "concern for production" and "concern for people."[2] A manager whose major concern is for production can be identified through his actions, which tend to be directed toward task completion, goal attainment, mission accomplishment, or, simply, turning out the work. He tends to be autocratic in his methods and strives to resolve conflict by suppression.[3]

On the other hand the manager whose major concern is for people can be identified by actions in which he helps his subordinates by improving working conditions, resisting pressures for production, and involving workers in decision-making. He tends to be democratic in his relations with subordinates and smooths over conflicts that develop in his work group.[4]

Since the two concerns, for production and for people, are not mutually exclusive, they can be represented on an orthogonal grid. The ordinate of the grid (scaled from 1-9) signifies a concern for people, while the abscissa (scaled identically) represents a concern for production. Combinations of the two basic concerns, or attitudes, are used to define five general management styles, as shown in Figure 2-4.

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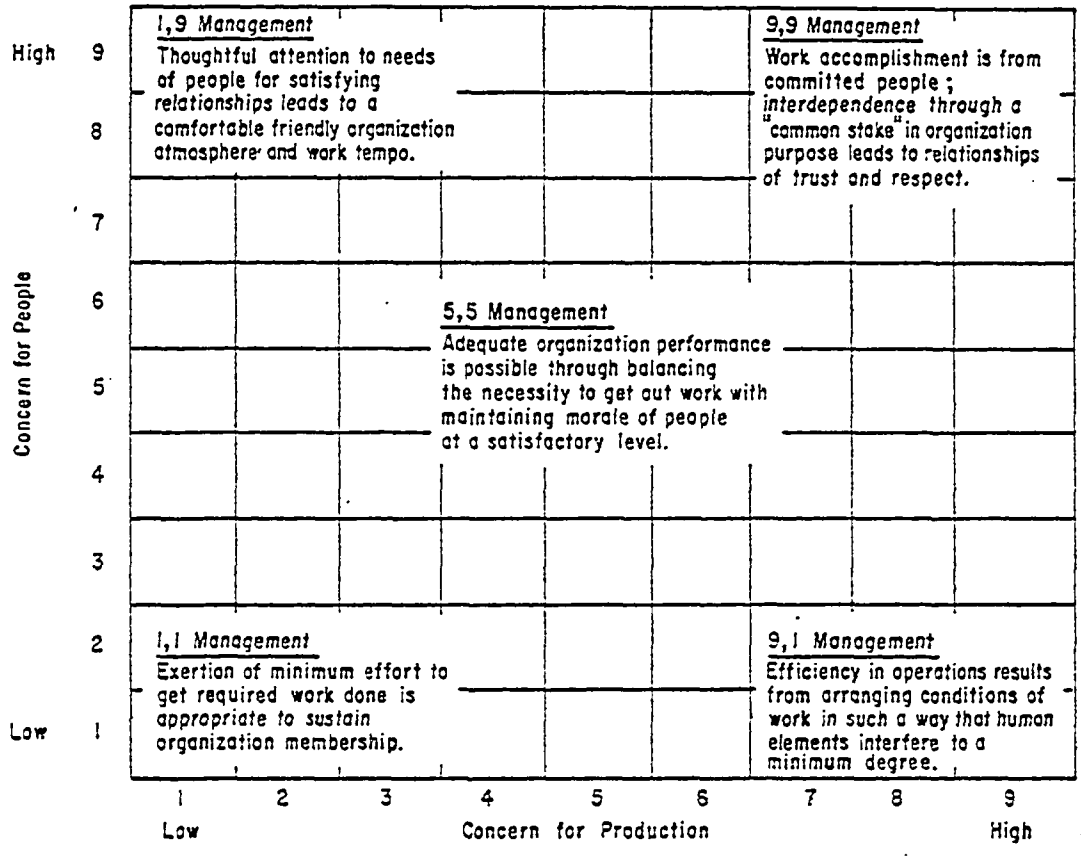
[1]Robert R. Blake and Jane Srygley Mouton, The Managerial Grid (Houston, Tex.: Gulf Publishing Co., 1964), pp. 5-17.

[2]Ibid., pp. 8-9. [3]Ibid., pp. 18-56. [4]Ibid., pp. 57-84.

FIGURE 2-4

THE MANAGERIAL GRID



SOURCE: Blake and Mouton, The Managerial Grid, p. 10.

A 9,1 manager displays a high concern for production and a low concern for people; a 1,9 manager displays a low concern for production but a high concern for people. The authors contend that the 9,9 managerial style, reflecting high concerns for both production and people, is the ideal pattern toward which managers should strive.[1] They provide some

[1]Ibid., pp. 316-18.

empirical evidence, based on a study involving 716 managers " . . . from one of America's largest industrial plants," to support their theory.[1]

Blake and Mouton have developed a six-phase organizational development (OD) training program, building on the managerial grid concept, which is designed to increase the frequency of 9,9 managerial behaviors in a target organization. Applications of the grid OD program have seemingly supported the notion that training managers to be highly concerned with both production and people will result in significant improvements in organizational performance.[2] However, the researchers' inability to control for the infinite number of variables that may have caused or contributed to the reported improvements in performance leave unanswered the question of cause and effect.

Industrial Humanism

A discussion of behavioral approaches to leadership would be incomplete without mention of industrial humanism. Industrial humanism is a philosophic approach to the study of organizations that " . . . embrances all movements which are liberal in spirit, seeking to bring to man at work freedom from oppression and an opportunity for self-determination."[3] According to Wren, "In its essence, industrial humanism sought

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[1]Ibid., pp. 231-46.

[2]Robert R. Blake et al., "Breakthrough in Organizational Development," Harvard Business Review 42 (Nov-Dec 1964): 133-55; and Robert R. Blake et al., "A Second Breakthrough in Organizational Development," California Management Review 11 (Winter 1968): 73-78.

[3]Scott and Mitchell, Organization Theory, p. 28.

to offset the authoritarian tendencies of organizations, to provide for democracy and self-determination at work, to integrate individual and organizational goals, and to restore man's dignity at work."[1]

Industrial humanism emphasizes behavioral science methodology as a means of achieving effective organizations. Short-run efficiency is disdained in favor of long run effectiveness, a condition attained when (1) psychologically mature workers are motivated by appealing to their needs for self-actualization and (2) the organization attains a systematically healthy state.[2]

A value laden philosophy, industrial humanism contains implicit assumptions that all men seek, or can be taught to seek, self actualization on the job. The assumptions are those of Theory Y.[3] The approach infers an obligation of those in authority to help employees achieve psychological health, a condition which, when pervasive in an organization, will result in organizational health and long run effectiveness. The industrial humanists base their normative theory " . . . upon the potentialities of man. Man should . . .," according to Argyris, " . . . be studied in terms of what he is capable of not only how he actually behaves."[4]

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[1]Wren, p. 442.

[2]Warren G. Bennis, "Towards a 'Truly' Scientific Management: The Concept of Organizational Health," in Organizational Systems: General Systems Approaches to Complex Organizations, ed. Frank Baker (Homewood, Ill.: Richard D. Irwin, 1973), pp. 507-27.

[3]Douglas McGregor, The Human Side of Enterprise (New York: McGraw-Hill Book Co., 1960), pp. 33-57.

[4]Chris Argyris, "Personality and Organization Theory Revisited," Administrative Science Quarterly 18 (June 1973): 141-67.

Thus, the normative, or ideal leader behavior pattern, from the industrial humanist viewpoint, is one which strives to optimize the contribution of each member; an employee-oriented style. In this approach, "it is the function of leadership to modify the organization in order to provide freedom for the individual to realize his own motivational potential for fulfillment of his own needs and at the same time contribute toward organizational goals."[1] In Likert's idealized System 4, for example, the effective manager uses " . . . the principle of supportive relationships, group methods of supervision . . ." and "participative group management" while spurning production oriented, authoritarian, or highly structuring behaviors.[2] The ideal industrial humanist manager, then, is a 1,9, employee-oriented, high consideration leader who helps his subordinates maximize their psychological growth as a means of achieving high performance over the long run.

Interaction Approaches

General

Interaction approaches tend to view leadership as an "interactional phenomenon" which emerges when people interact to achieve group goals.[3] This theoretical approach was given impetus by the work of Lewin who

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[1]Stogdill, Handbook, pp. 21-22.

[2]Rensis Likert, The Human Organization (New York: McGraw-Hill Book Company, 1967), p. 76.

[3]Gibb, "Leadership," p. 268.

contended (1) that behavior in general is some interactive function of the person and his environment and (2) that "the essence of social psychology is a group of people interacting."[1] The implications of all this for leadership is that the phenomenon can best be understood by studying the dynamics of groups in social interaction. Four general interaction theories that have been used as bases for explaining the leadership phenomenon are Homan's conceptual scheme, the Bales and Slater concept, Stogdill's interaction theory, and the Gibb model.

Homans' Conceptual Scheme

The idea of leadership as an interactional phenomenon was advanced by Homans in his conceptual scheme of work group behavior, which is built around three fundamental elements of human behavior: activities, interactions and sentiments. The organization requires certain behaviors in terms of activities, interactions and sentiments, but the behaviors that emerge from the "internal system" (people interacting with one another in the contrived environment) are seldom congruent with the behaviors that are required. The emergent behaviors have resultant effects on productivity, satisfaction, and individual development, which management may respond to by manipulating such controllable variables as technology, job design, rules and procedures, and leadership. The Homans' concept, a broad, deductive,

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[1]Lyman W. Porter et al., Behavior in Organizations (New York: McGraw-Hill Book Company, 1975), p. 102; and Miriam Lewin Papanek, "Kurt Lewin and His Contributions to Modern Management Theory," in Academy of Management Proceedings, Thirty-Third Annual Meeting (Boston, Mass.: n. p., 1973), p. 320.

group interaction model, dealt only superficially with leadership, although eleven normative general rules of leadership were distilled from the application of his concept to the work of other researchers.[1]

The Bales and Slater Concept

Bales and Slater conducted a series of experiments involving groups in dynamic interaction and identified two leadership roles that tend to emerge as members participate in joint problem-solving. One role that emerges is that of the "task specialist" who initiates significantly more problem-solving interactions than other group members. The second leadership role is that of the "social specialist" whose interactions are aimed at maintaining the socioemotional stability of the group. Since the two roles were not found to be mutually exclusive, the Bales and Slater research suggests three leadership roles: (1) the task specialist, (2) the social specialist, and (3) the "great man," or the rare individual who is able to fulfill both the task specialist and social specialist roles in the group.[2]

Stogdill's Interaction Theory

Stogdill, apparently recognizing the need for a broader conceptual framework as a result of his close association with the early Ohio State

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[1]George C. Homans, The Human Group (New York: Harcourt, World and Brace, 1950), pp. 415-40.

[2]Philip E. Slater, "Role Differentiation in Small Groups," American Sociological Review 20 (1955): 300-31; Bales, "Task Roles and Social Roles," pp. 437-47; and Bales and Slater, "Role Differentiation in Small Decision-Making Groups," pp. 259-306.

leadership research, developed an "expectancy-reinforcement theory of role attainment."[1] The theory describes an organized group as an input-output system whose inputs are performance, interaction, and expectation behaviors. These behaviors of people functioning in groups are manifested in (transformed into) role differentiation and role performance, (or group structure and group operations). The system (group) outputs are expressed in terms of "achievement" variables: productivity (the change in value resulting from group operations), integration (later termed "cohesiveness"), and morale (drive and persistence).[2]

Stogdill's illustrative model is shown in Figure 2-5. Though the "dominant direction of effects" between variables is shown in the model

FIGURE 2-5

STRUCTURE OF STOGDILL'S INTERACTION THEORY

Member Inputs	Mediating Variables		Group Outputs
Behaviors	Formal Structure	Role Structure	Achievement
Performances	Function	Responsibility	Productivity
Interactions	Status	Authority	Morale
Expectations	(Purpose, Norms)	(Operations)	Integration
Group Structure and Operations			Effects

SOURCE: Stogdill, Group Achievement, p. 13.

[1]Stogdill, Handbook, p. 20.

[2]Ralph M. Stogdill, Group Achievement, pp. 13-14 and 273-78; Ralph M. Stogdill, Managers, Employees, and Organizations (Columbus: Ohio State University, 1965), pp. 3-4.

as flowing from left to right, Stogdill suggests that feedback effects flow between the sets of variables, and that the variables " . . . not only interact with each other but also exert forward and backward effects upon the variables in each of the other segments in the chart."[1]

Stogdill has described the leadership implications of his interaction theory:

> As group members interact and engage in mutual task performance, they reinforce the expectation that each will continue to act and interact in accord with his previous performance. Thus, the individual role is defined by mutually confirmed expectations relative to the performances and interactions he will be permitted to contribute to the group. The leadership potential of any given member is defined by the extent to which he initiates and maintains structure in interaction and expectation.[2]

The Stogdill theory correctly recognizes the need to study ". . . a large system of variables and relationships that accounts for all the determining dimensions of the system . . ." in order to understand phenomena of interest, such as leadership, occuring within the system. Stogdill claims some support for his theory in a study of 27 organizations in five industries and state governments, but the test was far from comprehensive.[3]

The Gibb Model

Gibb's interaction theory views leadership as a phenomenon which arises from group dynamics. Groups are seen to be "mechanisms for

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[1]Stogdill, Group Achievement, p. 14. [2]Stogdill, Handbook, p. 20.

[3]Stogdill, Managers, Employees, Organizations, pp. 47-58.

achieving individual satisfactions."[1] A group is defined as " . . . a system of interactions within which a structure emerges by the development of relatively stable expectations for the behavior of each member."[2] The structure of a group evolves through the process of role differentiation. Role differentiation is a general phenomenon which results when people interact to achieve group goals.[3]

The leadership role emerges when, in the interaction of two or more persons, one (or more) of the parties " . . . come to control and direct the actions of the others in the pursuit of common ends."[4] Leadership roles are conferred upon members through interaction processes when those members are favorably evaluated by the group in terms of instrumentality for need satisfaction and emotional attachment.[5]

The Gibb interaction model explains inconsistencies in earlier theories by suggesting that leadership is situationally determined: " . . . the relative role an individual member assumes within the group is determined both by the role needs of the group and by the particular attributes of personality, ability, and skill which differentiate him from other members of the group."[6] Thus, Gibb views leadership as

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[1]Cecil A. Gibb, "An Interactional View of the Emergence of Leadership," Australian Journal of Psychology 10 (June 1958): 101-10.

[2]Gibb, "Leadership," p. 270. [3]Ibid., p. 270.

[4]Gibb, "An Interactional View," p. 109. [5]Ibid., p. 109.

[6]Gibb, "Leadership," p. 268.

" . . . a function of personality, and of the social situation and of these two in interaction." He contends, then, that leadership can be studied only within the framework of a general interactional theory.[1]

Leadership as Social Exchange

Another related interactional approach to understanding leadership views leadership as social exchange. The concept was first postulated by Homans, who suggested that social behavior be considered as:

> . . . an exchange of goods, material goods but also non-material ones, such as the symbols of approval or prestige. Persons that give much to others try to get much from them, and persons that get much from others are under pressure to give much to them. . . . For a person engaged in exchange, what he gives may be a cost to him, just as what he gets may be a reward, and his behavior changes less as profit, that is, reward less cost, tends to a maximum.[2]

As with the rationality assumptions of economic theory, Homans suggests that people tend to maximize individual returns (profits) in their exchanges with others. Behavior within and between groups may tend toward an equilibrium characterized by the achievement of "distributive justice." However, such a steady state may never be attained as members "jockey for positions" and modify their behaviors in their own self interests and at the expense of others.[3]

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[1]Ibid., p. 243.

[2]George C. Homans, "Social Behavior as Exchange," in Organizational Behavior and the Practice of Management, rev., David R. Hampton, et al. (Glenview, Ill.: Scott, Foresman and Co., 1968), p. 51.

[3]Ibid., pp. 40-51.

Idiosyncrasy Theory

Hollander's idiosyncrasy theory views leadership as a social exchange in which the leader provides to the group special abilities and competences. The leader's unique contribution earns him high status and influence in the group in return for which he helps the group to achieve its mutual goals and meet members needs. The group reciprocates by submitting to the leader's influence in terms of high job performance.[1]

When the leader conforms to the norms and expectations of the group and provides member satisfactions by meeting their needs, he earns idiosyncrasy credits. Idiosyncrasy credits, when accumulated to a sufficient degree, enables the leader to deviate from group norms as required to fulfill his leadership role, which is influencing group members to modify their behaviors as necessary to attain group goals. Hollander's research showed that when the leader deviates from group norms prior to accumulating a positive balance of idiosyncrasy credits, his influence is substantially diminished.[2] One of the principle conclusions of Hollander and Julian, in their relatively recent review of leadership theory and research is that " . . . the key to an understanding of leadership rests in seeing it as an influence process, involving an implicit exchange relationship over time."[3]

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[1]Edwin P. Hollander and James W. Julian, "Contemporary Trends in the Analysis of Leadership Processes," Psychological Bulletin 71 (1969): 387-97.

[2]Edwin P. Hollander, "Conformity, Status, and Idiosyncrasy Credit," Psychological Review 65 (1958): 117-27; and Jacobs, pp. 96-106.

[3]Hollander and Julian, p. 395.

Jacobs' Social Exchange Theory

Jacobs' social exchange theory represents an elaboration of idiosyncrasy theory. Jacobs, in extension of the Hollander notion, suggests that subordinates' evaluations of their leader " . . . are made in terms of the criterion of successful accomplishment of group goals, weighted by their estimate of the value of those goals to themselves, and perhaps secondarily, by the degree of status the leader actually presumed to himself in relation to other members of the group."[1] He emphasizes two "key features" of social exchange theory as being (1) the "expectation of reciprocation" on the part of the parties and (2) the "effect of a superior bargaining position."[2]

In the formal organization where the leader is designated by position and, in effect, represents the organization within the group, the expectation of reciprocation has been referred to as the "psychological contract," a concept that has been attributed to Argyris and Levinson.[3] The term has been defined by Thomas as " . . . the mutual expectations of the individual and the organization as articulated by its managers."[4] By virtue of his positional authority and power of reward or coercion, the leader in formal organizations inherits a superior

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[1]Jacobs, p. 109. [2]Ibid., p. 112.

[3]John Paul Kotter, "The Psychological Contract: Managing the Joining-Up Process," California Management Review 15 (Spring 1973): 92.

[4]Roosevelt Thomas, "Managing the Psychological Contract," in Organizational Behavior and Administration, 3d ed., ed. Paul R. Lawrence et al. (Homewood, Ill.: Richard D. Irwin, 1976), pp. 465-80.

bargaining position, and with it, considerable ability to influence others. Thus, Jacobs is convinced that effective organizational performance depends on the skill with which formal leaders "mediate" the exchange process between the organization and their subordinates.[1]

The various interaction approaches discussed above have received relatively little attention in the leadership literature. This is probably due to (1) the fact that they are so broad as to provide little direct guidance to the practitioner and (2) the complexity of the interaction models, which are characterized by numerous and intricately interrelated variables and pose overwhelming methodological problems of operationalization for researchers. Nevertheless, these general interaction models have provided the theoretical bases for narrower interaction theories that seem to offer great promise for describing, explaining, and predicting leadership in organizations. One such theory is the "Role-making Model of Leadership."

The Role-Making Model of Leadership

The role-making model of leadership conceptualized by Graen and others takes exception to certain implicit assumption of most behavioral theories. Those assumptions are that leaders develop homogeneous exchanges with their followers that can be expressed as an "average leadership style," and that subjects respond in some "average" manner. The role-making model

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[1]Jacobs, p. 24.

suggests that leaders behave differentially toward subordinates and that individual subordinates respond differentially toward a common leader.[1]

Accordingly, the role-making model, borrowing ideas from the Likert "linking-pin" concept, examines "vertical dyad linkages," or leader-member exchanges. Through interpersonal exchanges supervisors, over time, build managerial teams, and become, themselves, members of managerial teams at the next higher echelon of the organizational hierarchy.[2]

The system of vertical dyad linkages conceived of in the role-making model is illustrated in Figure 2-6.

As suggested in the figure, research on the vertical dyad has shown that the individual managerial teams develop "in" groups and "out" groups. "In group" members develop "leadership exchanges" with their bosses, receiving liberally from them such "positional resources" of the leader as influence in decision-making, inside information, etc. "Out group" members develop "supervisory" (authority based) exchanges with their bosses and are relatively neglected in terms of their leaders' positional resources.

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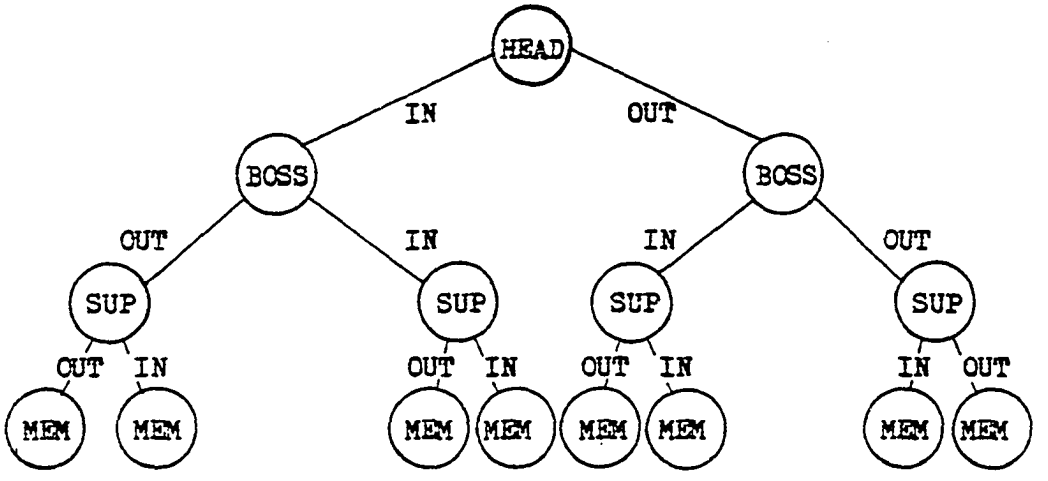
[1]George Graen and James F. Cashman, "A Role-Making Model of Leadership in Formal Organizations: A Developmental Approach," in Leadership Frontiers, ed. James G. Hunt and Lars L. Larsen (Kent, Ohio: Kent State University, 1975), pp. 143-65.

[2]James Cashman, et al., "Organizational Understructure and Leadership: A Longitudinal Investigation of the Managerial Role-Making Process," Organizational Behavior and Human Performance 15 (April 1976): 278-96.

FIGURE 2-6

SYSTEM OF VERTICAL DYAD LINKAGES



SOURCE: Cashman et al., "Organizational Understructure," p. 282.

The complete role-making model is conceptualized below in Figure 2-7 as an input-output system in which the leader-member exchanges (resulting in in groups and out groups) constitute the process through which the member's and leader's characteristics (inputs) are transformed into outputs of job performance, job satisfaction and job problems. The model also treats as an input the "early dyadic relationship" between leader and member, a variable which strives to measure the " . . . relative openness of a leader to individualized assistance for a member."[1] This "negotiating latitude" input variable is used to predict whether a member will belong to an in group or an out group. Indirectly, then, as suggested by

[1]Graen and Cashman, p. 145.

FIGURE 2-7

THE ROLE-MAKING MODEL OF LEADERSHIP

Input	Process	Output
Member's Characteristics: Education Job Experience Job Tenure Age Sex Other	Leader-Member Exchange 1. Interlocked Behavior (a) member behavior: tasks (b) leader behavior: resources	Job Performance (rating)
Leader's Characteristics: Education Job Experience Job Tenure Age Sex Other	2. Working Relationship (a) support (b) sensitivity (c) trust	Job Satisfaction Overall Work Supervision--Interpers. Relations Supervision--Tech. Competence Performance Rewards
Early Dyadic Relationship: Latitude		Job Problems Member Report Superior Report

SOURCE: Graen and Cashman, p. 152.

the theory, the early dyadic relationship, as measured by the leader's negotiating latitude, will determine the member's job performance, his job satisfaction and the relative number of job problems he experiences.

The developers of the role-making model have given careful attention to methodology, particularly to the development of valid reliable measures. The theory has been successfully tested and replicated in

several organizations and seems to have predictive validity. The implication for management is that training of leaders and group members in team-building skills, particularly during organizational periods, may pay dividends in terms of increased organizational effectiveness.[1]

Expectancy Theories

Expectancy theories are general motivation theories which suggest that an individual's behavior in a particular situation depends upon (1) his expectancies with respect to his accomplishment of a given act, (2) the instrumentality of that act for the attainment of valued outcomes, and (3) the valence or attractiveness of those outcomes. The numerous models that have evolved have their historical origins in the writings of Tolman and Lewin, but the idea was popularized in the organizational context by Vroom.[2]

Vroom's model, as interpreted by Litterer, typifies the numerous expectancy theories that have been elaborated, and is illustrated in Figure 2-8 below. The model suggests that the individual will be motivated to perform act i depending upon his expectancy that the act will lead to the immediate objective j (e.g., successful accomplishment of the

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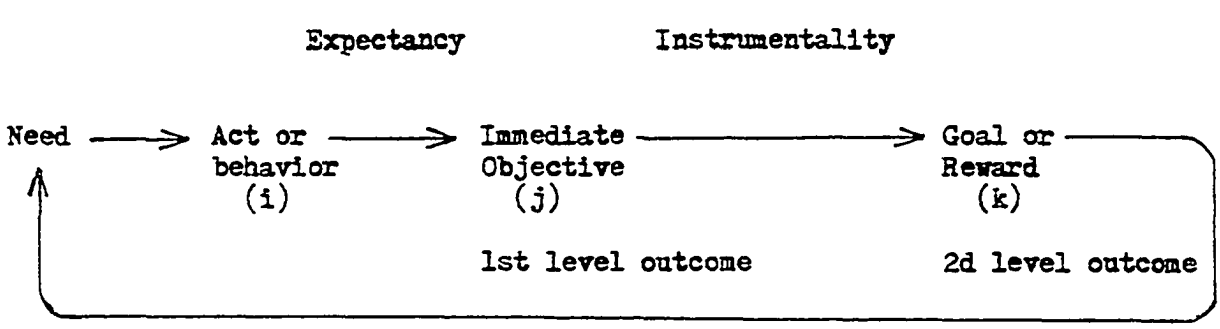
[1]Ibid., pp. 155-64.

[2]Edward E. Lawler III, Motivation in Work Organizations (Monterey, Cal.: Brooks/Cole Publishing Company, 1973), pp. 44-60; Leon Reinharth and Mahmoud A. Wahba, "A Test of Alternative Models of Expectancy Theory," Human Relations 29 (March 1976): 257-72; Campbell et al., pp. 343-48.

FIGURE 2-8

EXPECTANCY THEORY MODEL



SOURCE: Adapted from Joseph A. Litterer, The Analysis of Organizations, 2d ed. (New York: John Wiley & Sons, 1973), p. 153.

work assignment, or the organizational goal), the expected instrumentality of act i for attainment of an individual reward, k (e.g., promotion), and the attractiveness (valence) of the anticipated reward to the individual.

Numerous variations exist of the model described above. Many of the models provide additional levels of outcomes on the basis that organizational rewards, such as promotion, are not valued in themselves, but only insofar as they satisfy basic human needs such as security, social, esteem, etc. Some use additive and multiplicative combinations of expectancy, instrumentality, and valence in operationalizing the concept.

With respect to leadership, expectancy theory (an interaction approach) has reached its most mature state in the Path-Goal Theory of

Leadership Effectiveness.[1] Because of its emphasis on the moderating influence of certain "contingency" variables on the expectancy-instrumentality-valence pattern, the Path-Goal theory is discussed below as a contingency theory of leadership. The next section deals with the expanding domain of situational approaches and contingency theories.

Situational Approaches and Contingency Theories

General

None of the approaches to leadership theory discussed above appear capable, in themselves, of describing, explaining, and predicting effective leadership. Through the years there has been a growing awakening to the influence of the situation on the infinite number of interrelationships that need to be examined in the development of theories of organization. This awareness occurred very early in the trait approach to leadership, as evidenced by Stogdill's review of 1948.[2] Figure 2-9 illustrates the evolving awareness of theorists concerning the importance of situational influences on leadership processes.

The transition of thinking about leadership characteristics as general variables that differentiate leaders from nonleaders (or effective leaders from ineffective leaders) to thinking about effective leadership as being a function of the leader, the followers, and the situation

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[1]House, pp. 321-28.

[2]Stogdill, "Personal Factors," pp. 35-71.

FIGURE 2-9

SITUATIONAL VIEWS

Lewin (1935)	" . . . to understand or predict the psychological behavior (B) one has to determine for every kind of psychological event (actions, emotions, expressions, etc.) the momentary whole situation, that is, the momentary structure and the state of the person (P) and of the psychological environment (E). B = f (P, E). "[1]
Bird (1940)	"The great diversity of situations demanding leadership challenges the practice of ascribing general personality traits to all leaders."[2]
Barnard (1946)	The appropriate behavior of leaders depends upon the "conditions of leadership", that is, whether the leader is operating under "stable conditions" or "unstable conditions."[3]
Stogdill (1948)	"A person does not become a leader by virtue of the possession of some combination of traits, but the pattern of personal characteristics of the leader must bear some relevant relationship to the characteristics, activities and goals of the followers. . . . It becomes clear that an adequate analysis of leadership involves not only a study of leaders, but also of situations."[4]
Hemphill (1949)	"A view of leadership which stresses the situational nature of the leader's behavior gives a sound behavioral foundation for practical programs in the selection and training of those who are to direct group activities."[5]
Mann (1959)	"Sufficient evidence has accumulated to give impetus to the situational approach to leadership, which maintains that leadership is an emergent phenomenon, created through the interactions of individuals (leaders and followers) and that the selection and stability of any leadership pattern is a function of the task, composition, and culture of the group."[6]

[1]Kurt Lewin, A Dynamic Theory of Personality (New York: McGraw-Hill Book Co., 1935), p. 79.

[2]Bird, pp. 376, 390. [3]Barnard, p. 22.

[4]Stogdill, "Personal Factors," pp. 64-65.

[5]John K. Hemphill, Situational Factors in Leadership (Columbus, Ohio: Ohio State University, 1949), p. 101.

[6]Richard D. Mann, "Review of Relationships," p. 246.

parallels a shift in psychological theory. Lewin described this transition in psychological theory as a change from an "Aristotolian Approach" to a "Galileian Approach."[1] In the Aristotolian approach one seeks laws and generalizations through an "averaging" process. This approach " . . . does not regard exceptions as counter arguments so long as their frequency is not too great."[2] Laws derived through the Aristotolian approach apply " . . . to an average situation." But Lewin reminds us " . . . that there is no such thing as an 'average situation' any more than an average child."[3]

The growing disenchantment of scholars with the usefulness and reality of an Aristotlian approach to leadership theory has caused them to seek better understanding of phenomena of interest by examining the elements of each situation in which leader behavior occurs. The lack of realism and the overgeneralization of Aristotolian approaches to leadership resulted in a growing demand for situational theories which, though they sacrifice generality for realism, are useful to the practitioner. The result has been the fruitful development of approaches such as the interaction and exchange theories of leadership described above.

But the situational approach has problems, too. In situations involving highly variable human behavior, no two situations are entirely alike. The "Galileian Approach," in Lewin's terminology, requires that the manager examine each unique situation in order to try to understand

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[1]Lewin, pp. 1-42. [2]Ibid., p. 19.

[3]Ibid., p. 38.

the dynamics of the relevant interpersonal interactions. Emphasis is on situational diagnosis and the application of laws of the behavioral sciences to the "pure case" through "action research."[1] The manager is left to sort out for himself (at considerable time and expense) how the relevant aspects of the situation influence leadership in his particular case. The situational approach precludes generalization beyond the level of the small work group, since the situation differs dramatically from one work group to another and, also, within a given work group in response to temporal influences. Thus, situational theories are necessarily limited in scope to the micro-level of organizational analysis.

While the interaction and exchange theories more accurately reflect reality, their lack of generality and difficulty of application have caused scholars of late to call for a new emphasis. Thus, Korman, in discovering inconsistencies in the research findings concerning Consideration and Initiating Structure, called for " . . . systematic conceptualization of situational variance as it might relate to leadership behavior and a research program designed to test such a conceptualization so that direction might be given to the field."[2] Working at the macro-organization level, Kast and Rosenzweig have noted the evolving contingency view in organization theory and describe it as " . . . a mid-range concept that recognizes the complexity involved in managing modern organizations, but uses patterns

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[1]Ibid., pp. 25-26; Papanek, pp. 317-22.

[2]Korman, "Consideration and Initiating Structure," p. 355.

of relationships and/or configurations of subsystems in order to facilitate improved practice."[1] Their "mid-range concept" reconciles the search for the "one best way" with a realization that every situation is, in reality, different. Contingency theories are thus evolving which tend to reconcile the conflicting needs for reality and generality in theory and which reflect a compromise between the Aristotolian and Galileian approaches to theory. Figure 2-10 illustrates the relationship of the evolving contingency approach to the alternative approaches described by Lewin.

More and more, organizational researchers have begun focusing on the search for moderating, or contingency, variables to help explain inconsistencies in earlier theoretical models. The excitement for this new approach to leadership theory highlighted a symposium held at the Southern Illinois University in 1973, in which the focus was on contingency approaches to leadership.[2] The next section describes some of the major theories and research on leadership that have applied the mid-range, contingency approach discussed above.

Contingency Theories of Leadership

The evolving contingency theories of leadership can be described in terms of (1) hypothetical models and (2) empirically supported theories.

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[1]Kast and Rosenzweig, Contingency Views, p. 346.

[2]James G. Hunt and Lars Larsen, eds., Contingency Approaches to Leadership (Carbondale, Ill.: Southern Illinois University Press, 1974), pp. xv-xix.

FIGURE 2-10

APPROACHES TO LEADERSHIP THEORY

	Generalizing Approach (Aristotolian)	Contingency Approach (Mid-Range)	Situational Approach (Galilean)
Emphasis	Discovering laws, principles, generalizations	Identifying powerful moderating variables that permit meaningful generalization	Describing processes; identifying relevant variables in processes; teaching situational diagnosis based on understanding of processes
Characteristics	1. Deals w/average behaviors 2. Relatively unrealistic 3. Tendency toward over generality	1. Deals w/average behaviors as influenced by moderating variables 2. Moderately realistic 3. Permits useful generalizations	1. Deals w/specific behaviors (the pure case) 2. Relatively realistic 3. Overemphasis on particulars precludes useful generalization
Example	Management Grid	Fiedler's Contingency Theory	Jacobs' Social Exchange Theory
Major Contribution	Understanding	Intervention at the macro level	Intervention in particular situations

SOURCE: Adapted from Lewin, pp. 1-42.

Hypothetical Models

Hypothetical models are those theories that are not supported by scientific research, where scientific research is defined as " . . . systematic, controlled, empirical, and critical investigation of hypothetical propositions about the presumed relationship among natural phenomena."[1] Five theories will be discussed in this section: the Continuum of Leadership Behavior, the 3-D Theory, the Life Cycle Theory, the Three Pattern Approach, and the Kast and Rosenzweig Contingency Model.

The Continuum of Leadership Behavior

Tannenbaum and Schmidt provided a conceptual framework to describe the range of alternative behaviors available to the manager depending on the situation he faces.[2] The range of alternatives is illustrated in Figure 2-11. The alternatives range from one extreme, where the manager makes a decision and announces it (boss-centered leadership) to the other where the manager provides broad operational guidelines to his subordinates and allows them autonomy in their decision making within those guidelines (subordinate-centered leadership).

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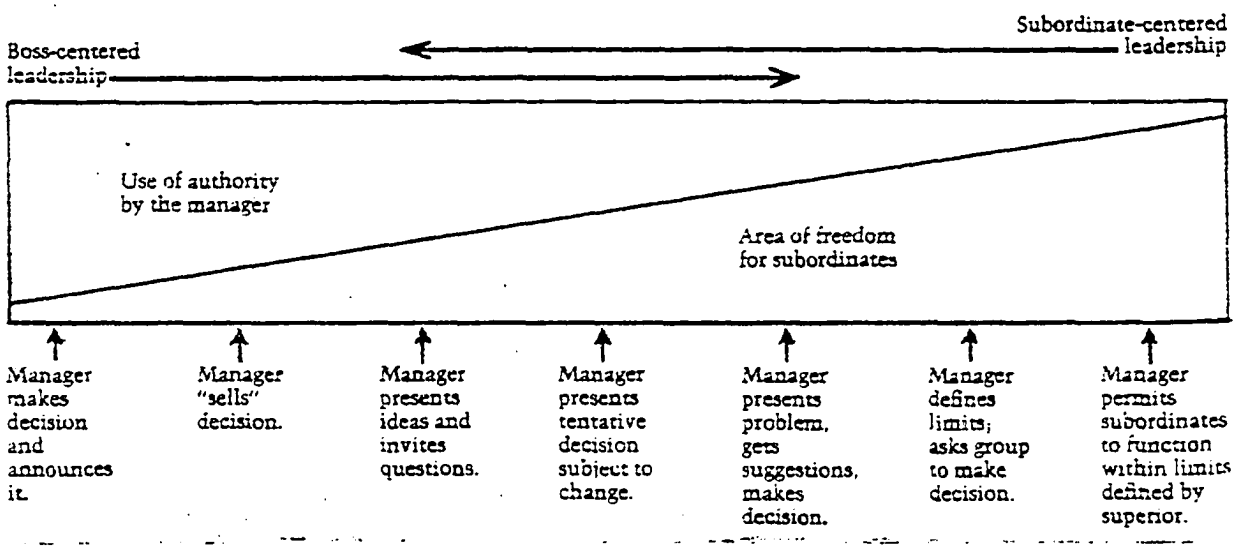
[1]Fred N. Kerlinger, Foundations of Behavioral Research, 2d ed. (New York: Holt, Rinehart and Winston, 1973), p. 11.

[2]Robert Tannenbaum and Warren H. Schmidt, "How to Choose a Leadership Pattern," Harvard Business Review 51 (May-June 1973): 162-80.

FIGURE 2-11

CONTINUUM OF LEADERSHIP BEHAVIOR



SOURCE: Tannenbaum and Schmidt, p. 164.

In the Tannenbaum and Schmidt conceptual model the moderating (or contingency) variables which determine the appropriate behavior are classified under the headings (1) forces in the leader, (2) forces in the subordinate, and (3) forces in the situation. Figure 2-12 summarizes those forces which the leader must take into account in choosing his behavioral style.

In 1973 the authors reviewed their conceptual model and updated it, stressing a new emphasis on the "interdependency" of the forces acting on the manager, the subordinate, and the situation. They also added to the list of forces in the situation the external "organizational environment" and the "societal environment." Further, instead of the manager determining the appropriate leadership behavior for a given situation, they see that

FIGURE 2-12

CONTINGENCY VARIABLES

Forces in the Manager
- Value System
- Confidence inclinations
- Feelings of security

Forces in the subordinate
- Needs for independence
- Readiness to assume responsibility
- Tolerance for ambiguity
- Interest and appreciation for problems
- Committment to organizational goals
- Competence
- Expectations about decision making

Forces in the Situation
- Organization Type
- Group effectiveness
- The problem itself
- Pressure of time

SOURCE: Tannenbaum and Schmidt, pp. 173-79.

behavior as being determined " . . . by interaction--direct or indirect--between the two parties."[1]

The contribution of the Tannenbaum and Schmidt model is the suggestion that there is no "one-best-way" of leadership, but that the most effective behavior depends upon situational factors. The authors presented hypothetical factors believed to determine the most appropriate

[1]Ibid., pp. 166-68.

style, but provided no research evidence to support their concepts nor specific guidance on how the model could be applied.

The 3-D Theory

Reddin's 3-D Theory, the second of the hypothetical contingency models to be described here, builds on two dimensions identified in behavioral theory, task orientation (TO) and relationships orientation (RO), and adds a third "effectiveness" dimension.[1] Four "basic" styles are available to the manager based on relative degrees of TO and RO incorporated into his behavior, as shown in Figure 2-13.

The basic styles are illustrated in the center box of Figure 2-13. The "separated" style represents the style of a manager who is relatively low in both TO and RO and who is especially " . . . concerned about correcting deviations." The "related" manager is high on RO and low on TO; he tends to " . . . accept others as he finds them." A manager who is low on RO and high on TO uses a "dedicated" style and " . . . tends to dominate others." The "integrated" style describes a manager who has high TO and RO and who " . . . is a joiner and takes great pains in getting appropriately involved with individuals or groups over work."[2] Each style represents a rather wide range of behaviors.

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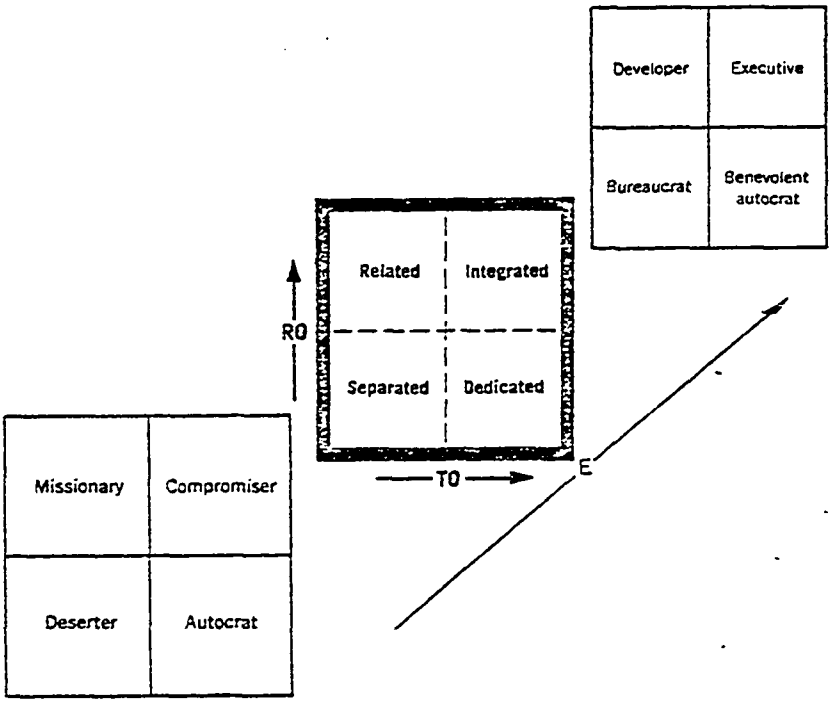
[1]William J. Reddin, Managerial Effectiveness (New York: McGraw-Hill Book Co., 1970), pp. 11-17.

[2]Ibid., pp. 30-32.

FIGURE 2-13

THE 3-D MODEL



SOURCE: Reddin, p. 13.

Since Reddin theorizes that no one style is always appropriate, he adds an effectiveness dimension with appropriate labels to distinguish between the "more effective" and "less effective" equivalents of the four basic styles. Figure 2-14 illustrates this point.

Reddin provides lists of "indicators" for each of the twelve styles described by the model to aid in application of the theory.[1] Whether or not

[1]Ibid., pp. 205-34.

FIGURE 2-14

EFFECTIVE AND INEFFECTIVE STYLES

Basic Style	Effective Equivalent	Ineffective Equivalent
Separated	Bureaucrat	Deserter
Related	Developer	Missionary
Dedicated	Benevolent Autocrat	Autocrat
Integrated	Executive	Compromiser

SOURCE: Reddin, p. 13.

a given style is effective or ineffective (i.e., whether a manager using a separated style should be called a Bureaucrat or a Deserter) in a given situation depends upon situational "demands", which are classified by Reddin under the categories (1) organizational philosophy, (2) technology, (3) superior, (4) coworkers, and (5) subordinates.[1] Reddin believes that a manager, though he tends to adhere to a single "dominant" style, is capable of varying his basic style widely. Thus, in order to provide effective leadership the manager must be able to (1) maintain style flexibility, (2) diagnose the work situation to ascertain the given and required leadership behaviors, and (3) make changes in the situation or his managerial style so as to match his style with the demands of the situation.

The 3-D Theory provides some indication of how the situational determinants influence managerial style. For example, Reddin provides a list of 20 "technology demands indicators" (5 for each basic style) to determine what style is appropriate for a given technology. Applying

[1]Ibid., pp. 15-16.

these indicators, Reddin suggests:

> A technology demanding separated behavior by the manager . . . would be one in which subordinates do more thinking than acting, where what subordinates actually do follows established procedures, where the work is very interesting in itself, where subordinates can to a large degree decide their own effectiveness standards, and where the tasks are basically simple.[1]

The author has developed a test instrument for the measurement of managerial style and has reportedly applied the concepts in numerous seminars involving managers from a variety of firms and organizations. Although Reddin offers very limited evidence that managers can be trained to be more aware of their managerial styles, he offers no research evidence which relates a given managerial style to organizational effectiveness under the influence of the relevant situational variables. The contribution of the 3-D Theory to the body of leadership knowledge is that it provides (1) a useful technique for describing and measuring leadership styles and (2) a basis for formulating hypotheses concerning the influence of a number of moderating variables on the relationship between leader behavior and effectiveness.

Life Cycle Theory

Another contingency-oriented hypothetical model of leadership effectiveness is the Hersey and Blanchard Life Cycle Theory.[2] Drawing heavily from Reddin's 3-D Theory, the authors arrive at a more simplistic

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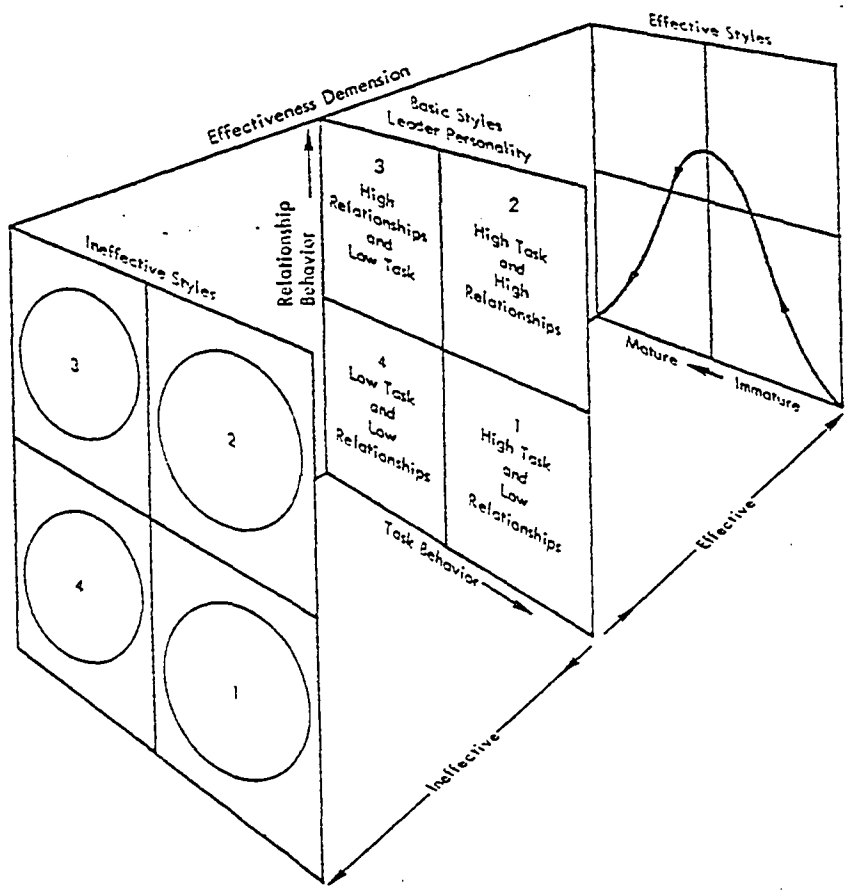
[1]Ibid., p. 73.

[2]Hersey and Blanchard, pp. 133-48.

curvilinear model in which the principle moderating variable is follower maturity (Figure 2-15).

FIGURE 2-15

LIFE CYCLE MODEL



SOURCE: Hersey and Blanchard, p. 138.

Maturity is defined in terms of the Argyris immaturity--maturity continuum in which the psychologically immature individual expresses infantile qualities (passivity, dependence, subordinateness, etc.) and

the psychologically mature person expresses contrasting adult qualities (activity, independence, equality, or superordinateness).[1]

As in 3-D Theory the vertical and horizontal axes describe relative levels of relationship and task behavior, respectively, and the third dimension relates to leadership effectiveness. Leadership style is expressed in terms of four possible styles: (1) high task and low relationship, (2) high task and high relationship, (3) high relationship and low task, and (4) low task and low relationship. As suggested in Figure 2-15, any single style (1, 2, 3, or 4) applied consistently over time, without regard for the psychological maturity of the follower(s), will be ineffective (indicated by the circles on the left side of the diagram).

The most effective style will depend upon the relative maturity of the followers. For psychologically immature followers, the model suggests that the only effective style is style 1 (high task-low relationship). For mature followers style 4 (low task-low relationship) is most appropriate. The effective style for followers of average maturity is either style 3 (high relationship-low task) or style 2 (high task-high relationship).

Like Reddin, Hersey and Blanchard perceive the manager as being able to change his leadership style to suit the situation. Also, through the technique of Organizational Behavior Modification (OB Mod), the manager has some capability of influencing the behavior of his subordinates in the direction of greater maturity.[2] Hence, the ability of the manager

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[1]Ibid., pp. 50-53. [2]Ibid., pp. 152-58.

to diagnose the situation and make appropriate changes is the essence of effective leadership.[1]

The theory is intuitively appealing, but lacks explicit research support. The fundamental contribution is the identification of the powerful moderating variable, subordinate maturity, as a potential influence on effective leader behavior.

The Three Pattern Approach

The Three Pattern Approach of Katz and Kahn defines and explores the concept of leadership within an open system framework in which leadership is seen as " . . . the influential increment over and above mechanical compliance with the routine directives of the organization."[2] With respect to the five bases of power conceptualized by French and Raven, then, only "referent" and "expert" power are involved in leadership. (The role-given powers--legitimate power, reward power, and punishment power--are considered to be conferred by the organization equally upon managers at the same level of the organization, and hence are not of the essence of leadership.)[3]

The unique function of leadership in organizations is the origination, interpolation and administration of structure. The term "structure" has a special meaning in the Katz and Kahn formulation, referring to the cyclical patterns of activities and subactivities (or events)

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[1]Ibid., p. 133. [2]Katz and Kahn, p. 302.

[3]Ibid., p. 302-303.

involved in the input-transformation-output system which characterizes organizations operating in an open system.[1] The leader's special job is to originate (change, create or eliminate), interpolate (supplement and piece out), and administer (use) cyclical patterns of activities involved in the transformation process.

The contingency implications of the Katz and Kahn model are demonstrated in Figure 2-16. The emphasis of the leadership process varies depending upon organizational level. Leadership at the top echelons of organizations tends to focus on the origination of structure; leadership at the intermediate and lower levels tend to focus on interpolation and administration, respectively. The model implies that different levels of management require different cognitive and affective abilities and skills. (Cognitive abilities and skills are described as task-oriented requirements and affective abilities and skills as relationships-oriented requirements based on the two fundamental dimensions of behavior isolated in the leadership literature.)

The cognitive (task related) requirements for originating structure (at the top management level) dictate that the manager maintain a systems perspective. That is, he must recognize that the organization is a part of a larger environmental system (the external perspective); he must behave with sensitivity to environmental demands and opportunities. Furthermore, the manager at top echelons must perceive his organization as consisting of diverse, interacting subsystems that must be integrated and harmonized.

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[1]Ibid., p. 20-21.

FIGURE 2-16

THE THREE PATTERN MODEL

Type of Leadership Process	Appropriate Organizational Level	Abilities and Skills	
		Cognitive	Affective
Origination: change, creation, and elimination of structure	Top echelons	System perspective	Charisma
Interpolation: supplementing and piecing out of structure	Intermediate levels: pivotal roles	Subsystem perspective: two-way orientation	Integration of primary and secondary relations: human relations skills
Administration: use of existing structure	Lower levels	Technical knowledge and understanding of system of rules.	Concern with equity in use of rewards and sanctions

SOURCE: Katz and Kahn, p. 312.

With these perspectives the top level manager is able to see structure as a means, not an end in itself, and can establish or modify patterns of activities in response to changing demands of the internal and external environments.

The affective (relationship oriented) requirement for originating structure is, according to Katz and Kahn, "charisma, . . . that magical aura with which people sometimes endow their leaders."[1] Through his actions in originating structure and his "social distance" from the organizational rank and file, the top level manager is able to " . . . develop an emotional tie which is not accessible to the lower echelons of supervision."[2]

At the middle management level the behavioral emphasis is on interpolation of structure, or developing " . . . ways and means for implementing existing policies and reaching existing organizational goals."[3] This often involves initiating patterns of subactivities required to flesh out the grand design originated at the top level of management. It is a cognitive requirement that the middle manager have a two-way systems orientation. The manager must understand the internal workings of his own subsystem as well as the relationship of that subsystem in the larger organization. Also, he must know his immediate work group.

Required affective abilities and skills at the middle management level involve the "integration of primary and secondary relations."

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[1]Ibid., pp. 318-19. [2]Ibid., p. 318. [3]Ibid., p. 319.

Primary relations concern " . . . direct face-to-face interaction," are "person-specific rather than universalistic," and are " . . . affectively connected rather than rationalistically role-related."[1] Secondary relations " . . . are those interpersonal transactions required by organizational role."[2] The ideal manager strives to involve "whole" people in organizational activity by tempering organizational requirements to the needs of his subordinates in a creative way. He introduces " . . . primary variations on the secondary requirements of organization," or in other words, "he adapts his own interpersonal style to the needs of other persons" to obtain the total committment of his subordinates.[3]

The behavioral emphasis at lower levels of the organization is on administration, or the use of predesigned patterns of activities and subactivities. The cognitive requirement of leaders at lower levels of the organization is for technical knowledge and understanding of the system of roles, regulations, and procedures laid out by higher hierarchical levels. The affective, or socio-emotional orientation of the leader must be toward enforcement of the rules " . . . in a clear, consistent, fair manner." The ideal lower echelon leader concerns himself with enforcing the spirit, not the letter, of the law.[4]

The implications of this three pattern model are that managers are not interchangeable between hierarchical levels of the organization. As the manager progresses upward in his career, he finds it necessary to gradually adjust his leadership from an early emphasis on administration

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[1]Ibid., p. 323. [2]Ibid., p. 322. [3]Ibid., pp. 325-26.

[2]Ibid., pp. 328-29.

to later emphasis on interpolation and origination of structure. As he progresses he must learn new skills and develop new orientations. Each promotion calls for new abilities, without which the manager will have reached his "level of incompetence."[1]

The major contribution of the Katz and Kahn three pattern theory of leadership is the identification of an important contingency variable relevant to effective leadership--hierarchical level. The theory suggests that past inconsistencies in research findings on effective leadership may be at least partially attributed to the failure to account for the influence of hierarchical level.

The Kast and Rosenzweig Contingency Model

The Kast and Rosenzweig Contingency Model is a macro-level hypothetical model of organizations which transcends the narrower domain of leadership theory.[2] Nevertheless, the model provides an intuitively appealing conceptual framework derived from the research literature which contributes to a better understanding of leadership in formal organizations. The Contingency Model represents an integration of numerous contingency ideas around the central notion of Burns and Stalker concerning "mechanistic" and "organic" organizational systems.[3]

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[1]Laurence J. Peter and Raymond Hull, The Peter Principle: Why Things Always go Wrong (New York: Bantam Books, 1969), pp. 7-10.

[2]Kast and Rosenzweig, Contingency Views, pp. 305-20.

[3]Burns and Stalker, cited by Perrow, pp. 37-47.

Burns and Stalker examined groups of firms operating in relatively stable (or certain) environments, firms which were trying to move into an electronics industry which was characterized by a relatively uncertain, changing environment. Their findings suggested that certain characteristics were appropriate for organizations operating in stable environments ("mechanistic" systems) and different characteristics were appropriate for organizations operating in rapidly changing environments ("organic" systems).

Building on the Burns and Stalker research and other contingency concepts, Kast and Rosenzweig developed an integrated "Contingency Model" which is conceptualized and interpreted in terms of "two polar descriptions of organization systems or types: closed/stable/mechanistic and open/adaptive/organic." The environments (or "environmental suprasystems") which inspire closed/stable/mechanistic and open/adaptive/organic organizational systems, and their key dimensions, are shown in Figure 2-17.

The closed/stable/mechanistic organizational type (hereafter described as mechanistic) tends to be bureaucratic in nature and operates in a relatively closed, certain, deterministic environment. The mechanistic organization is characterized by (1) a highly formalized structure; (2) relatively repetitive, routine tasks; (3) many written procedures, rules, and regulations; (4) clear definition of reponsibility and authority; (5) autocratic decision-making; and (6) emphasis on stable, efficient performance. The open/adaptive/organic (hereafter described as "organic") organizational type is non-bureaucratic and operates in relatively open, uncertain, indeterminate environments. The organic type of organization is characterized by (1) highly informal structure; (2) varied and nonroutine

FIGURE 2-17

ENVIRONMENTS AND ORGANIZATIONAL SYSTEMS

Systems and Their Key Dimensions	Characteristics of Organizational Systems	
	Closed/Stable/ Mechanistic	Open/Adaptive Organic
Environmental Suprasystem		
General nature	Placid	Turbulent
Predictability	Certain, Determinate	Uncertain, Indeterminate
Degree of environmental influence on organization	Low	High
Control of task environment by organization	High	Low
Technology	Stable	Dynamic
Inputs	Homogeneous	Heterogeneous
Boundary relationships	Relatively closed. Limited to few participants (sales, purchasing, etc.). Fixed and well defined.	Relatively open. Many participants have external relationships. Varied and not clearly defined.
Organization means for interfacing with environment	Routine, standardized procedures	Nonroutine, flexible arrangements
Interorganizational relationships	Few organizations and/or organization types with well-defined, fixed relationships	Many diverse organizations with changing relationships

SOURCE: Kast and Rosenzweig, Contingency Views, p. 315.

tasks; (3) few written procedures, rules, and regulations; (4) relatively vague definition of responsibility and authority; (5) participative decision-making; and (6) emphasis on effective problem solving and innovation.[1]

The Kast and Rosenzweig model is all-encompassing and describes characteristics of all organizational subsystems including (1) the overall organizational system, (2) the technical system, (3) the structural system, (4) the psychosocial system, and (5) the managerial system. "Leadership style" constitutes an important "dimension" of the psychosocial system, which is described in terms of 17 dimensions in all, including such things as interpersonal relationships, status structure, and motivational factors.

The implications of the model for leadership theory is that it suggests that the most appropriate (effective) style of leadership is contingent upon organization type (which in turn is determined by the environmental suprasystem). The mechanistic organization requires an "autocratic, task-oriented desire for certainty" style, whereas the organic organization demands a "democratic, relationship-oriented tolerance for ambiguity" style. In effect, the Contingency Model of Kast and Rosenzweig suggests that two contingency variables exert powerful influence on leadership in formal organizations: (1) the nature of the external environment and (2) the organizational type, expressed in terms of closed/stable/mechanistic versus open/adaptive/organic.

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[1]Kast and Rosenzweig, Contingency Views, pp. 305-20.

Empirically Supported Theories

Empirically supported contingency theories of leadership are theories that have evolved through scientific research and which have been fully reported in the literature. A number of sophisticated contingency theories have been formulated in the last decade, the earliest and most well-known of which is Fiedler's Theory of Leader Effectiveness.

Theory of Leadership Effectiveness

Fiedler's Theory of Leadership Effectiveness (the Contingency Model) provides a "framework for understanding leadership effectiveness" in work groups.[1] Fiedler suggests " . . . that the effectiveness of a group is contingent upon the relationship between leadership style and the degree to which the group situation enables the leader to exert influence."[2] The situational factors deemed important by Fiedler include (1) the personal relationship between leader and group members, (2) the task structure, and (3) the position power of the leader.[3] In more specific terms the theory may be summarized by stating that effective leadership style is a function of task structure, the personal relationship between leader and group members, and the position power of the leader.

The situational determinants are arranged in the model in such a way as to describe a continuum of favorability for leader influence on his work group. In Figure 2-18 a situation which is highly favorable for the

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[1]Fiedler, Theory, p. 3. [2]Ibid., p. 15.

[3]Ibid., pp. 22-35.

FIGURE 2-18

CONTINUUM OF SITUATIONAL FAVORABILITY

	Hi				Situational Favorability			Lo
Situational Determinants								
Leader-Member Relations	Good				Poor			
Task-Structure	Hi		Lo		Hi		Lo	
Leader Position Power	Hi	Lo	Hi	Lo	Hi	Lo	Hi	Lo
Situational "Cells"	1	2	3	4	5	6	7	8

SOURCE: Adapted from Fiedler and Chemers, p. 70.

leader (situational cell 1) is one in which leader-member relations are good, the task is highly structured, and the leader has high position power. On the other hand, a situation which is highly unfavorable for the leader (situational cell 8) is one in which leader-member relations are poor, the task is unstructured, and the leader has little, if any, formal authority over group members.[1]

An unusual feature of Fiedler's theory is his definition of leadership style. Leadership style is expressed in terms of "Least-Preferred Coworker (LPC)" scores. To determine an individual's leadership style, he is asked to describe his least-preferred coworker (the person with whom

[1]Fiedler and Chemers, pp. 63-70.

he works least well) on a semantic differential form. One sample item from the 16 item scale is shown below:

Pleasant	:	:	:	:	:	:	:	:	Unpleasant
	8	7	6	5	4	3	2	1	

Examples of other characteristics evaluated by the respondent on the semantic differential form are friendliness, helpfulness, closeness, etc. Scores on the 16 items are summed to permit the respondent to be evaluated in terms of a total LPC score.[1]

LPC is interpreted as an "index of motivational hierarchy, or of behavioral preferences."[2] The leader who scores high on the LPC instrument " . . . has as his basic goal the desire to be related." He tends to be relationship-oriented in his behavior. The goal of the low LPC leader is " . . . to accomplish the task," hence, he behaves in a task-oriented manner.[3]

Fiedler views leadership style as being a relatively stable personality ingredient, susceptible to modification, but only at great expense and difficulty through treatment " . . . tantamount to psychotherapy."[4] Thus, the Contingency Model implies that in order to obtain effective leadership in a given situation, it may be necessary to manipulate the situational determinants to fit the relatively inflexible style of a given

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[1]Ibid., pp. 73-74. [2]Ibid., pp. 74-76.

[3]Ibid., p. 76. [4]Ibid., p. 76.

leader. Fiedler describes such manipulative change as "organizational engineering."[1]

Fiedler has found that the most effective leadership style for favorable leadership situations (situational cells 1, 2 and 3 in Figure 2-18) and for highly unfavorable leadership situations (cell 8) is the task-oriented (low-LPC) style. On the other hand, situations intermediate in favorableness for the leader (cells 4 and 5) call for the relationship-oriented, considerate (high-LPC) style of leadership. (Empirical evidence is scarce with respect to cells 6 and 7, and the theory is silent concerning the relative effectiveness of leaders with moderate LPC scores.)[2]

The major contribution of Fiedler's research is that it strongly suggests that the appropriate leadership style depends upon situational variables. Fiedler demonstrates that it is possible to isolate and measure relevant situational variables that bear on the effectiveness of leaders in formal organizations. He has stimulated the search for other powerful moderating variables that influence leadership and has, by example, encouraged researchers to apply the contingency approach in other domains of organizational theory.

Mann's Skill-Mix Theory

Mann's skill-mix theory holds that managers, or supervisors, require some appropriate mix of technical, human relations, and administrative skills in order to fulfill their roles as "structural coordinative linking

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[1]Ibid., pp. 150-52. [2]Ibid., pp. 78-91.

pins" in formal organizations.[1] The appropriate mix of these three classes of skills is dependent upon (1) the organizational level at which the manager operates and (2) temporal influences such as the relative stage of an organization's life cycle.

Mann's skill-mix bears some resemblance to the Ohio State leadership behavior dimension of consideration (human relations skills) and initiating structure (administrative and technical skills). Human relations skill concerns " . . . the ability to use pertinent knowledge and methods for working with people and through people," (or interpersonal competence).[2] Technical skill ". . . refers to the ability to use pertinent knowledge, methods, techniques, and equipment necessary for the performance of specific tasks and activities, and for the direction of such performance."[3] Administrative skill is " . . . the ability of the supervisor to think and act in terms of the total system within which he operates . . ." and involves " . . . planning, programming, and organizing the work, assigning the right tasks to the right people . . .", etc.[4] The relative independence of these three classifications of leadership skills has been empirically supported in a factor analysis.[5]

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[1]Floyd C. Mann, "Toward an Understanding of the Leadership Role in Formal Organizations," in Leadership and Productivity, ed. Robert Dubin et al. (San Francisco: Chandler Publishing Co., 1965), pp. 68-103.

[2]Ibid., p. 74. [3]Ibid., p. 73.

[4]Ibid., p. 75. [5]Ibid., p. 96.

For effective leadership, it is necessary that the manager possess these abilities in variable degrees depending on the contingency variables of hierarchial level and life cycle of the organization. At lower levels, the manager must be highest in technical skill with human-relations skill a close second. At the highest (top management) levels, the more effective executives tend to be highest in administrative skill. In newer organizations, the Mann research suggests that the more effective middle managers demonstrate relatively high administrative skill; in older organizations characterized by technological obsolescence, high human relations ability is requisite to the success of first and second level supervisors.[1]

The skill-mix research also suggests other temporal factors significant to effective leadership. For instance, in a study of a computer system changeover it was shown that for groups closely involved, the more effective supervisors shifted from emphasizing human relations skills to technical and administrative skills. Later, after the transition, they shifted back to a reliance on their human relations abilities.[2]

Mann's work has demonstrated the important moderating effects of hierarchical level and temporal influences on leader behavior.

Wofford's Situational Framework

Wofford's situational framework for understanding managerial behavior is based on an empirical study involving employees from 88

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[1]Ibid., pp. 94-96. [2]Ibid., pp. 90-94.

companies in the Dallas-Fort Worth area.[1] The employees described their immediate supervisor's behavior on a factor analysis-derived questionnaire which measured the supervisor's behavior in terms of the 5 behavioral dimensions shown in Figure 2-19 (Column 1).[2]

FIGURE 2-19

VARIABLES OF WOFFORD's MODEL

	(1) Managerial Behavior Dimensions		(2) Situational Factors		(3) Effectiveness Criteria
I	Group Achievement and Order	I	Centralization and Work Evaluation	I	Work Unit Performance
II	Personal Enhancement	II	Organizational Complexity	II	Work Unit Morale
III	Personal Interaction	III	Size and Structure		
IV	Dynamic Achievement	IV	Work Group Structure		
V	Security and Maintenance	V	Organizational Layering and Communication		

SOURCE: Wofford, "Managerial Behavior," pp. 11-16.

A high score on the first dimension, "Group Achievement and Order" indicates a " . . . manager who uses the group process in decision making,

[1] J. C. Wofford, "Managerial Behavior, Situational Factors, and Productivity and Morale," Administrative Science Quarterly 16 (March 1971): 10-17.

[2] J. C. Wofford, "A Factor Analysis of Managerial Behavior Variables," Journal of Applied Psychology 54 (1970): 169-73.

organizing and communicating." He is an "administrator." The dimension "Personal Enchancement" describes an authoritative manager who " . . . seeks personal recognition for himself rather than for his subordinates." The dimension "Personal Interaction" relates to the manager who is characterized by friendliness, warmth, and informality in his relations with his subordinates. A manager scoring high on "Dynamic Achievement" tends to be goal-oriented, to be "direct and open" with his men, and to operate " . . . in an efficient, energetic manner." The dimension "Security and Maintenance " . . . refers to the manager who is cautious and aloof."[1]

Wofford also gathered measurements concerning 18 situational (or organizational climate) variables identified in the literature as relating to leadership. He factor-analyzed the data and isolated the 5 general situational factors listed in Figure 2-19 (Column 2). Factor I, "Centralization and Work Evaluation," measured the relative centralization of decision-making and closeness of supervision. Factor II, "Organization Complexity," measured the technical complexity and sophistication of the organization, while the third factor measured organizational size and task structure. Factor IV measured "structural attributes of the work unit," including the size of the basic work group, group participation in work decisions, etc. The fifth factor, "Organizational Layering and Communication," refers to the number of hierarchical levels and the degree of coworker communications permitted by the work structure.[2]

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[1]Wofford, "Managerial Behavior," pp. 11-12.

[2]Ibid., pp. 12-13.

In order to determine the moderating effect of the situational factors, Wofford dichotomized his sample of managers into high and low groups based on their ratings on each factor. He then correlated scores on the behavioral dimensions with scores on the effectiveness criteria for both the high and low group on each factor. The differences in the correlations for the high and low groups were then tested for statistical significance in order to ascertain whether the situational factor did, indeed, have a moderating influence on work group effectiveness. As an example of the tests that were conducted, Figure 2-20 illustrates Wofford's findings with regard to the moderating influence of Centralization and Work Evaluation on the managerial behavior-productivity relationship.

FIGURE 2-20

PARTIAL CORRELATIONS OF PRODUCTIVITY WITH MANAGERIAL BEHAVIOR DIMENSIONS UNDER HIGH AND LOW CENTRALIZATION AND WORK EVALUATION

	Management Behavior Dimensions				
Situational Factor	I	II	III	IV	V
Centralization and Work Evaluation					
High	.53	-.08	.17*	39*	.02
Low	.43	-.01	-.15*	.08*	.18

*Significant at the .01 level

For the example shown in Figure 2-20, Wofford found that high Personal Interaction (Managerial Behavior Dimension III) correlated significantly higher with productivity under conditions of high Centralization and Work Evaluation than under low conditions of that situational factor. This indicates that the friendly, warm, and informal (high Personal Interaction) manager is more productive in an organization characterized by centralized decision-making and close supervision than in climates where decision-making is decentralized and general supervision is practiced. Similarly, from Figure 2-20 it can be seen that the Dynamic Achievement oriented manager (Management Behavior Dimension IV) is more productive in the centralized climate than in one which is low on Centralization and Work Evaluation.

Other significant findings of the research (not shown in Figure 2-20) are that (1) the Dynamic Achievement manager produces higher unit morale in a decentralized climate than in a centralized one; (2) the cautious and aloof (high Security and Maintenance) manager has a more satisfied work group in a centralized climate than in a decentralized one; and (3) the Personal Enhancement manager is more productive under conditions of low Organizational Layering and Communication than under the opposite condition. Interestingly, the situational factors Organizational Complexity, Size and Structure, and Work Group Structure did not significantly moderate the relationship between managerial behavior and work group effectiveness.

Because there were so few significant contingency relationships detected when the data were analyzed in terms of situational factors (only 5 out of the possible 50 relationships examined were statistically significant), Wofford examined the moderating influence of the 17 individual situational variables (that comprised the five situational factors) on the behavior-effectiveness relationship. Out of a total of 170 comparisons 27 were significant. Only two of the situational variables, (1) the technical knowledge of the manager and (2) the dependence of employees, failed to moderate the behavior-effectiveness relationship for at least one of the managerial behavior dimensions. One of the major findings of this detailed analysis was that the Personal Enhancement dimension was the most influenced by the situational variables. In Wofford's words:

> . . . the relationship between personal enhancement and productivity was significantly stronger and in the positive direction for situations in which the stations of work were separated, the co-workers communicated infrequently with one another, work schedules were relatively simple, and organization structure had few levels.[1]

Other findings of the research will not be detailed here. Wofford's major contribution is his comprehensive, systematic exploration for broad moderating variables that impinge on effective leadership in formal organizations. His situational framework has provided additional descriptive support for the contingency approach and has revealed the possible moderating influence of specific variables.

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[1]Ibid., pp. 14-16.

The Normative Decision-Making Model

The Vroom and Yetton normative decision-making model is a theory of leadership derived from descriptive studies of managerial decision-making processes in formal organizations.[1] Based on the descriptive studies, Vroom and Yetton developed a continuum of decision methods arranged according to the degree to which subordinates are allowed to participate in decision-making. One extreme of the continuum, like the Tannenbaum and Schmidt model, provides for the manager to make the decision himself without any involvement of his subordinates. The other extreme provides for the entire work group to share in the decision, with the manager serving as a sort of "chairman." The Vroom and Yetton system for classification of decision methods for group problems is summarized in abbreviated form in Figure 2-21. (A separate classification system is provided for individual problems but will not be discussed here.)[2]

Vroom and Yetton have demonstrated empirically that managers differ with respect to their typical (average) decision behavior. In this respect their findings are consistent with earlier research on behavioral dimensions of leadership. For example, some managers tend, on the average, to be more autocratic (classification AI of the taxonomy) and others tend, on the average, to be more democratic (classification GII). More important, however, is their finding that individual managers use more than one decision method

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[1]Victor H. Vroom and Philip W. Yetton, Leadership and Decision-Making (Pittsburg, Pa.: University of Pittsburg Press, 1973), pp. 10-92.

[2]Ibid., pp. 12-18.

FIGURE 2-21

CLASSIFICATION OF DECISION METHODS
(GROUP PROBLEMS)

AI.	You solve the problem or make the decision yourself, using information available to you at the time.
AII.	You obtain the necessary information from your subordinates, then decide the solution to the problem yourself.
CI.	You share the problem with the relevant subordinates individually, getting their ideas and suggestions without bringing them together as a group. Then you make the decision.
CII.	You share the problem with your subordinates as a group, obtaining their collective ideas and suggestions. Then you make the decision.
GII.	You share the problem with your subordinates as a group. Together you generate and evaluate alternatives and try to reach consensus. You act as a chairman and are willing to accept and implement any solution which has the support of the entire group.

SOURCE: Adapted from Vroom and Yetton, p. 13.

to solve problems depending on the nature of the problem. Nearly all the managers sampled by the researchers perceived themselves as using the entire range of decision methods, depending on certain "attributes" of the problem.[1]

Thus, the contingency variables of the Vroom and Yetton normative model, derived from descriptive studies of managerial decision-making in formal organizations, are problem "attributes." Vroom and Yetton have shown that approximately 30% of the variation in managers' choices of

[1]Ibid., pp. 59-92.

decision-making methods is explained by problem attributes, whereas only 8.5% is explained by differences in individual preferences.[1]

The problem attributes, expressed in question form (items A through H) are shown at the top of Figure 2-22, as components of the normative decision-making model. The attributes were derived through multiple regression analysis of research data obtained from managers who were asked to indicate what decision process they would use to solve a number of carefully designed, standardized cases. (The standardized cases had been designed to analyze the relative influence on the manger's decision method of various a priori problem attributes.)[2]

The normative decision-making model, shown in Figure 2-22, provides a guide for managers to choose the most effective decision method depending on attributes of the problem. To determine the appropriate decision method for a given problem, the manager applies the problem attribute questions in the order indicated by the decision tree (or decision-process flow chart). He answers each applicable question "yes" or "no", and follows the appropriate branch of the decision tree to its end on the right-hand side of the diagram. (If the answer to question A, for example, is "no", the manager would next consider problem attribute D concerning whether or not acceptability by subordinates was critical.)

The numbers at the end of each branch identify the "feasible sets" of decision methods appropriate for a given problem. Feasible set number 1,

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[1] Ibid., pp. 101-106. [2] Ibid., pp. 107-114.

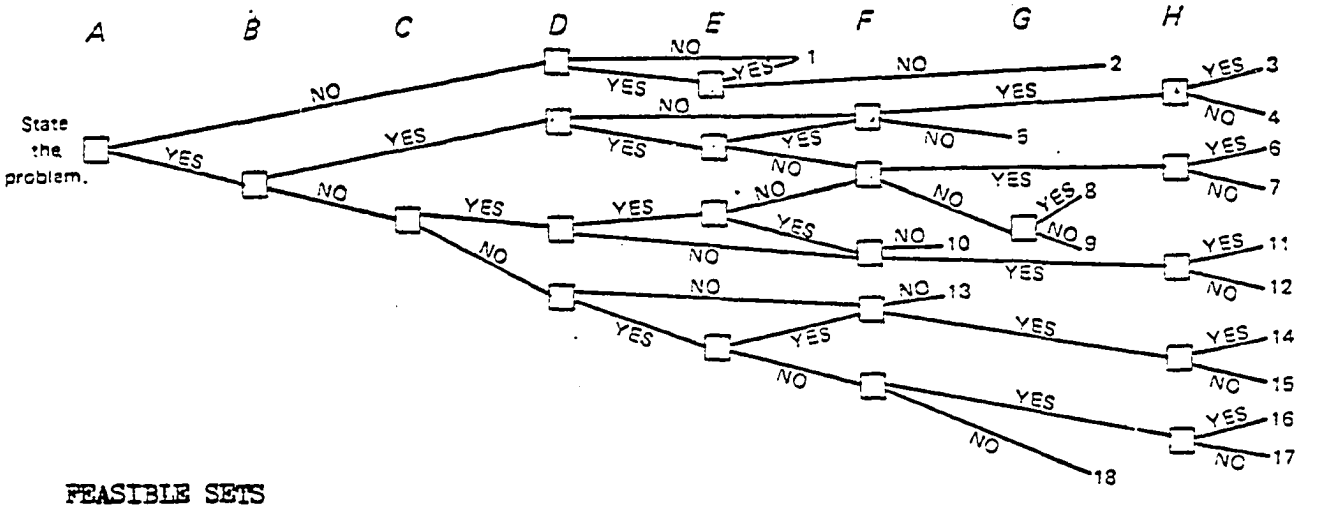
FIGURE 2-22

THE NORMATIVE DECISION-MAKING MODEL

PROBLEM ATTRIBUTES

A. Is there a quality requirement such that one solution is likely to be more rational than another?
B. Do I have sufficient info to make a high quality decision?
C. Is the problem structured?
D. Is acceptance of decision by subordinates critical to effective implementation?
E. If I were to make the decision by myself, is it reasonably certain that it would be accepted by my subordinates?
F. Do subordinates share the organizational goals to be attained in solving this problem?
G. Is conflict among subordinates likely in preferred solutions?
H. Do subordinates have sufficient info to make a high quality decision?

DECISION TREE



FEASIBLE SETS

1	AI, AII, CI, CII, GII	7	GII	13	CII
2	GII	8	CII	14	CII, GII
3	AI, AII, CI, CII, GII	9	CI, CII	15	CII, GII
4	AI, AII, CI, CII, GII	10	AII, CI, CII	16	GII
5	AI, AII, CI, CII	11	AII, CI, CII, GII	17	GII
6	GII	12	AII, CI, CII, GII	18	CII

SOURCE: Adapted from Vroom and Yetton, p. 194.

for example, allows the manager to choose any of the five methods in the order AI, AII, CI, CII, and GII. The manager, in this case has only to decide whether he wishes to minimize man-hours (in which he would pick the first alternative, AI) or maximize employee development (in which case he would choose the last alternative, GII). A number of the feasible sets provide no managerial discretion; that is, there is a "one best solution" for problems possessing certain combinations of the attributes (feasible sets 2, 6, 7, 8, 13, 16, 17, and 18).[1]

The contribution of the Vroom and Yetton decision process model to leadership theory is twofold. First, the model isolates a powerful contingency variable (problem attributes) that influences leader behavior and determines the relative effectiveness of that behavior. The influence process that Vroom and Yetton seem to describe is shown in Figure 2-23. Arrows are shown to indicate the influence of "other situational variables" on leader attributes and organizational effectiveness, but are depicted with broken lines since they are not encompassed in the decision process model.

The second contribution of the model is that it can be quickly learned and applied. It seems reasonable to conclude that significant changes in leadership behavior can be achieved by application of the model, changes that may very well result in more effective decision-making in organizations.

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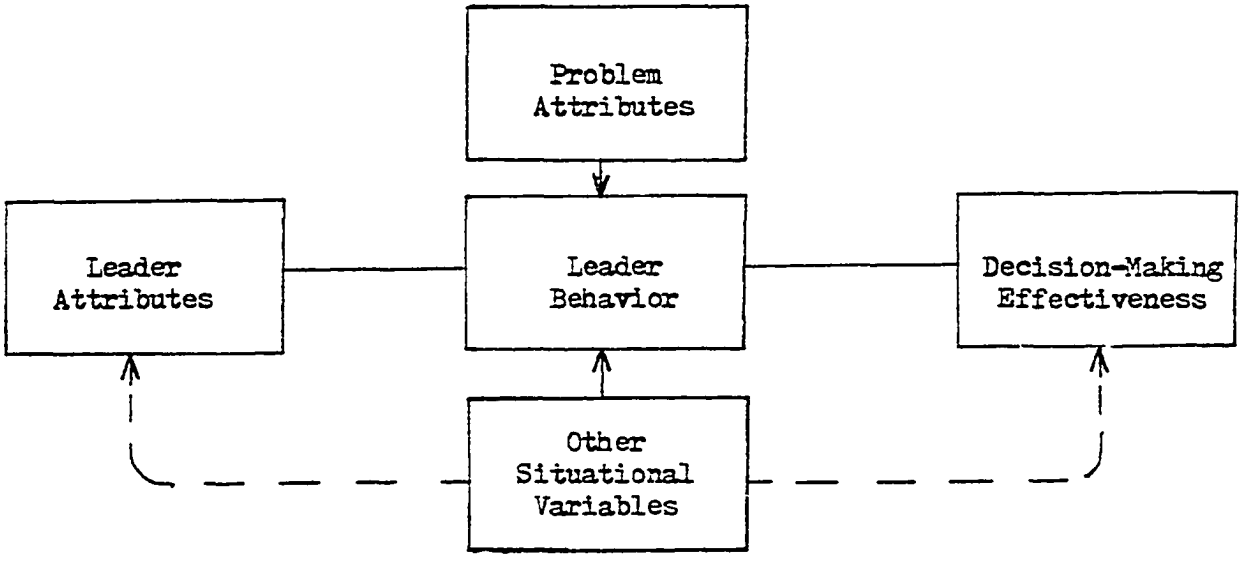
[1]Ibid., pp. 32-44.

FIGURE 2-23

RELATIONSHIPS OF VARIABLES
IN THE NORMATIVE DECISION-MAKING MODEL



SOURCE: Adapted from Vroom and Yetton, pp. 197-99.

The Decision Behavior Model

Contemporaneously with the work of Vroom and Yetton, Heller and Yukl developed a similar descriptive theory which they call the Decision Behavior Model.[1] Like the Vroom and Yetton version, the Decision Behavior Model operationalized the Tannenbaum and Schmidt continuum of leadership behavior in terms of five "decision styles." The five decision styles, ranging on the continuum from " . . . no subordinate influence to complete

[1]Frank A. Heller and Gary Yukl, "Participation, Managerial Decision-Making, and Situational Variables," Organizational Behavior and Human Performance 4 (1969): 227-41.

subordinate influence," are, in order of increasing influence for the subordinate:[1]

1. Own Decision without Explanation
2. Own Decision with Explanation
3. Prior Consultation
4. Joint Decision-making
5. Delegation

Heller and Yukl developed three instruments to measure, by self report, leader decision-making in terms of the five styles. One instrument, Form A, is used to determine the relative percent of time the leader uses each of the five styles. Form B provides eleven different senior management level problems for which the leader indicates the percent of time he uses each of the five styles to solve that particular type of problem. Form C, dealing with general leadership problems, requires the leader to choose the one style he would use to solve each of eighteen different problems. From the three forms a composite "decision centralization index" is derived to measure the relative amount of influence (participation) a supervisor typically allows his subordinates.[2]

Data was collected from 182 managers from 15 large companies at three organizational levels: (1) senior management, (2) middle management, and (3) first line management.[3] In addition to leader decision centralization, data was also collected to describe hypothetical situational

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[1]Ibid., p. 230. [2]Ibid., pp. 231-32. [3]Ibid., p. 231.

variables including authority level, span of control, job function, length of time in present position, and type of decision.

Like Vroom and Yetton, Heller and Yukl found that leaders can be differentiated with respect to their typical decision styles, and, also, that individual leaders tend to use different styles to solve different types of problems. For example, some leaders tend to adhere to a highly centralized style, while others are characterized by a more decentralized style. Also, the researchers found that senior managers tend to use more centralized (less participative) styles when dealing with problems relating to their immediate subordinates, and less centralized (more participative) styles when dealing with problems concerning their subordinate's subordinates.

Middle and first-line managers used more participative styles in making task-oriented (task) decisions than when making decisions concerning personnel matters (maintenance) decisions.

Other contingency relationships discovered include the following:[1]

1. Decision centralization decreased with increased hierarchical level of leaders

2. Decision centralization tended to increase with increased span of control for both senior managers and second line supervision, but senior managers tended to delegate considerably when span of control was large

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[1]Ibid., pp. 233-39.

3. Decision centralization tended to be higher among production and finance managers than among non-specialized "general" managers and personnel managers

4. For senior managers decision centralization decreased with length of tenure, but for first-line and middle managers, decision centralization increased with time in present position

The major contribution of the decision behavior model is that it identifies contingency variables that have been shown to significantly influence the decision-making style of leaders. In addition to the type of problem (emphasized in the Vroom and Yetton normative decision-making model), Heller and Yukl found that authority level in the organization, span of control, job function, and length of time in present position also contribute to the variability in choice of decision-making method. The model also lends empirical support to the Vroom and Yetton findings that individuals do differ with respect to their typical decision behaviors and that most leaders use a variety of decision methods depending on the situation.

The Path-Goal Model

The Path-Goal theory of leadership reflects the application of expectancy theory to the study of leadership. The Path-Goal theory of leadership stems principally from the expectancy theory studies of University of Michigan researchers Georgopoulous, Mahoney, and Jones, as extended to the leadership domain by Evans and House and Dessler. The former posited a general path-goal (or expectancy) theory of

motivation which they successfully tested in a household appliances company.[1] It remained for Evans to apply the ideas of path-goal relationships to the domain of leadership when he examined " . . . the impact of a leader's behavior . . . on the subordinate's path-goal instrumentalities," and found some support for the theory.[2] House extended the Evans formulation by providing for the moderating influence of various contingency variables on path-goal relationships.[3]

In its most mature form, the House version, the theory suggests that leaders' "strategic functions" involve manipulation of path-goal variables, i. e.:

> . . . (1) recognizing and/or arousing subordinates' needs for outcomes over which the leader has some control, (2) increasing personal payoffs to subordinates for work goal attainment, (3) making the path to these payoffs easier to travel by coaching and direction, (4) helping subordinates clarify expectancies, (5) reducing frustrating barriers and (6) increasing the opportunities for personal satisfaction contingent on effective performance.[4]

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[1]Basil S. Georgopoulous et al., "A Path-Goal Approach to Productivity," Journal of Applied Psychology 41 (December 1957): 345-53.

[2]Martin G. Evans, "The Effects of Supervisory Behavior on the Path-Goal Relationship," Organizational Behavior and Human Performance 5 (1970): 277-98.

[3]House, pp. 321-28.

[4]Robert J. House and Gary Dessler, "The Path-Goal Theory of Leadership: Some Post Hoc and A Priori Tests," in Contingency Approaches to Leadership, ed. James G. Hunt and Lars Larsen (Carbondale, Ill.: Southern Illinois University Press, 1974), pp. 29-55.

The current version also recognizes the influence of two broad classes of situational variables that influence the leader's impact on the path-goal relationships: (1) "characteristics of subordinates" and (2) "environmental pressures and demands." Examples of the first class are subordinate needs for affiliation and achievement. The second class of situational variables, environmental pressures and demands, are broken down into three sub-classes: (1) the subordinate's task, (2) the formal authority system of the organization, and (3) the primary work group.[1]

Four-Factor Theory

Seashore and Bowers have developed a sophisticated, empirically supported model which they describe as a "Four-Factor Theory of Leadership."[2] The theory is based on four behavioral dimension or "factors" which were deductively derived from the leadership literature. The four factors are (1) support, or "behavior that enhances someone else's feeling of personal worth and importance;" (2) interaction facilitation--"behavior that encourages members of the group to develop close, mutually satisfying relationships;" (3) goal emphasis--"behavior that stimulates an enthusiasm for meeting the group's goal or achieving excellent performance;" and (4) work facilitation--behavior that helps achieve goal

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[1]Ibid., pp. 31-32.

[2]David G. Bowers and Stanley E. Seashore, "Predicting Organizational Effectiveness with a Four-Factor Theory of Leadership," Administrative Science Quarterly 2 (September 1966): 238-63.

attainment by such activities as scheduling, coordinating, planning, and by providing resources such as tools, materials, and technical knowledge."[1]

Measurement of leader behavior on the four factors is accomplished through administration of the leadership scales of the Survey of Organizations (SOO) questionnaire.[2] Though the four factors were not, as the name suggests, identified through factor analysis, Taylor and Bowers accomplished a Guttman-Lingoes Smallest Space Analysis using data collected from employees of a large oil refinery.[3] They concluded that the clusters generally fit the Bowers and Seashore four factors and that " . . . each of the four indices [factors] has enough unique variance to be considered a measure of some distinguishable aspect of leadership."[4]

The Four Factor Theory is unique in two ways. First, leadership is seen as being widely distributed in organizations. Leadership is not an exclusive function of supervisory position, but is a phenomenon that may be exercised by any organizational member. Accordingly, in operationalizing their theory, Bowers and Seashore provide separate scales for measurement of manager and peer leadership behavior, each expressed in terms of the four factors.[5]

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[1]Ibid., p. 247.

[2]James C. Taylor and David G. Bowers, Survey of Organizations (Ann Arbor: University of Michigan, 1972), pp. 1-3; 47-49.

[3]David Anthony Butterfield, "An Integrative Approach to the Study of Leadership Effectiveness in Organizations" (Ph. D. dissertation, University of Michigan, 1968), p. 20; and Taylor and Bowers, pp. 47-48.

[4]Taylor and Bowers, p. 59. Ibid., pp. 48-49.

The second unique aspect of Four Factor Theory is the approach used to measure organizational effectiveness. Since leadership is seen as important because of its relation to effectiveness, and objecting to approaches that use "unitary" or global measures of effectiveness, Bowers and Seashore sought to isolate effectiveness criteria of particular relevance to the organization under study.[1]

In the pioneer study of a life insurance company, for example, seventy measures, used internally by the organization to assess sub-unit performance, were factor-analyzed to identify seven factors which seemed to define effective performance for the given organization in the given environmental setting. The factors identified for the life insurance firm were (1) staff-clientele maturity, (2) business growth, (3) business costs, (4) advanced underwriting, (5) business volume, (6) manpower turnover, and (7) regional manager's personal performance. To measure the "morale" component of effectiveness the researchers applied more conventional measures of satisfaction--satisfaction with company, with fellow agents, etc.[2]

One of the most interesting findings of the Bowers and Seashore research is that peer leadership is possibly a better predictor of organizational effectiveness than is supervisory leadership. Based on a multiple regression analysis, the best predictors of performance and satisfaction in the insurance company were identified as show in Figure 2-24.

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[1]Ibid., pp. 249-50. [2]Ibid., pp. 251-54.

FIGURE 2-24

PREDICTORS OF PERFORMANCE AND SATISFACTION

Effectiveness measure	Best Leader Behavior Predictor	Other measures improving prediction
Satisfaction with		
Company	Peer goal emphasis	None
Fellow Agents	Peer goal emphasis	None
Job	Peer support	None
Income	Manager interaction facilitation	Peer goal emphasis
Manager	Manger support	None
Factors		
I Staff Clientele maturity	Peer goal emphasis	Peer work facilitation
III Business Costs	Peer goal emphasis	None
IV Advanced underwriting	Peer work facilitation	None
V Business volume	Manager goal emphasis	None

SOURCE: Bowers and Seashore, p. 256.

Three of the performance factors, business growth, manpower turnover, and regional manager performance, showed no significant relationships with any of the leadership variables through direct correlation.

But, of special relevance to contingency theory, the relationship between leader behavior and effectiveness criteria was found to be much stronger when the researchers incorporated a large number of "nonleadership variables" into the analysis. (Many of these nonleadership variables were better individual predictors of effectiveness criteria than the leadership predictors.) Among the nonleadership variables that were found to strengthen the leadership - criteria relationship were:

1. Leadership related constructs, including regional manager's expert power, regional manager's influence acceptance, and rivalry among agents

2. Work patterns including percentage of time in miscellaneous activities, in paperwork for clients, in professional development

3. Personal and motivational variables including education, level of aspiration, need for affiliation, goal compatibility of individual and organization, and classical business ideology

Finally, Bowers and Seashore found that the relationships between leadership behavior variables and organizational effectiveness criteria were quite complex. In their words " . . . the search for the best predictive model turns into a rather complicated examination of various chains and arrangements of constructs."[1] An example of one of the more complicated of these "chains of relationships" is shown in Figure 2-25. In the figure, the number .60 represents the multiple correlation of the variables listed against the performance criterion "business growth." The other numbers represent the direct correlations between pairs of variables (i.e. -.40 represents the direct correlation between classical business ideology and business growth, +.42 the correlation between acceptance of regional manager's influence and percentage of time in professional development. etc.).

Four factor theory, then, is practically a situational theory (as contrasted above with contingency theory) since the appropriate style of leadership for a given organization depends upon (1) criteria of relevance to that organization operating in its given environment, and (2)

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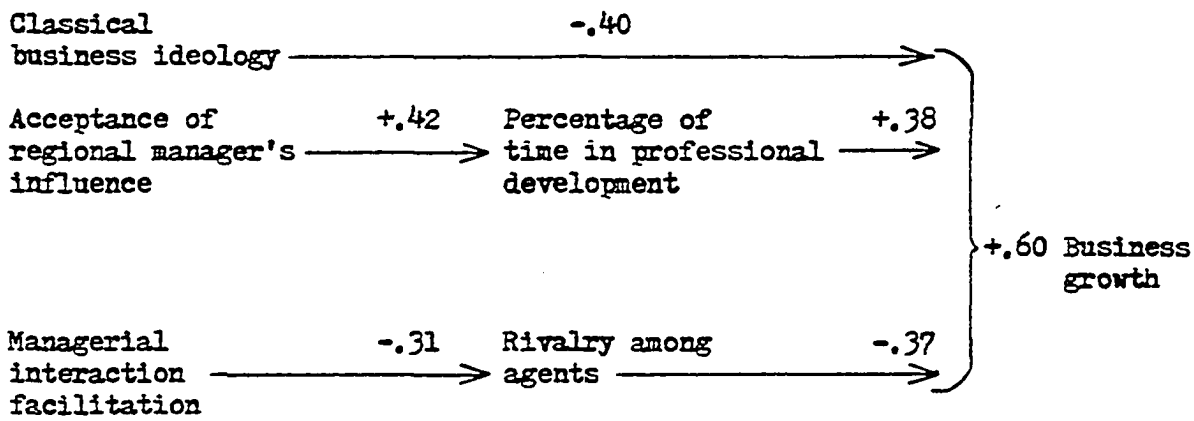
[1]Bowers and Seashore, p. 259.

FIGURE 2-25

A CHAIN OF RELATIONSHIPS



SOURCE: Adapted from Bowers and Seashore, p. 260.

certain nonleadership contingency variables, which interact with the leadership variables to form "chains of relationships" than can be used to predict effectiveness.

The major contribution of Bowers and Seashore to leadership theory is the identification of organization-specific effectiveness criteria as contingency variables that tend to determine the relative appropriateness of given leader behaviors in given situations. Secondarily, they identified additional nonleadership or contingency variables (regional manager's expert power, rivalry among agents, etc.) that seem to interact with leader behavior and satisfaction variables in complicated chains of relationships to determine organizational performance.

The Lorsch and Morse Contingency Approach

Lorsch and Morse have developed a contingency approach to the understanding of effectiveness in organizations. Their exploratory model provides a sophisticated macro-level conceptual framework which explains effective organizations in terms of " . . . a three-way fit of people and the external and internal environment in order to understand the feelings of competence and performance in a particular unit."[1] Embedded in their model are "supervisory style" variables, incorporated in such a way as to constitute, implicitly, a test of the Kast and Rosenzweig hypothetical model discussed above. The Lorsch and Morse research tested the influence of powerful moderating variables on the relationship between effectiveness and, among other things, leadership (or supervision) in ten large organizations.

The Lorsch and Morse model--background. The Lorsch and Morse model is a logical extension of the line of contingency research which began with the Burns and Stalker study of mechanistic and organic management systems, and which was advanced by the work of Woodward, and later, Lawrence and Lorsch. Burns and Stalker, based on twenty studies, found that the most appropriate (effective) management system for firms operating in a slowly changing environment (described in terms of technology and markets) is the "mechanistic" management system, which is characterized by specialized functional tasks; hierarchical structure of control, authority, and communication; centralized decision-making at the top hierarchical levels;

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[1]Lorsch and Morse, p. 61.

role specificity; etc. On the other hand, they concluded that a rapidly changing environment required, for effective performance, an "organic" management system, the polar opposite of the mechanistic system. Both organizational types were, according to the researchers, " . . . a rational form of organization in that they may both . . . be explicitly and deliberately created and maintained to exploit the human resources of a concern in the most efficient manner feasible in the circumstances of the concern."[1]

Woodward, in her Tavistock studies of 100 English firms in diverse industries, found a relationship between the nature of the task (technology) and the structure of the organization. The more effective organizations tended to adopt structures consistent with the requirements of their technological environments. Thus, for example, effective firms involved in "unit and small batch" production tended to have few levels of management, narrow executive spans of control, and high direct to indirect labor ratios; while effective firms having "process" production systems typically had many management levels, wide executive spans of control, and low direct to indirect labor ratios. One particular form of organization structure was found to be most appropriate for each system of production.[2]

Lawrence and Lorsch showed that the effectiveness of an organization is related to the extent to which it achieves the state of

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[1]Burns and Stalker, pp. 74-80.

[2]Joan Woodward, Industrial Organizations: Theory and Practice (New York: Oxford University Press, 1965), pp. 52-80.

differentiation demanded by the environment in which it operates.[1] They define differentiation as " . . . the difference in cognitive and emotional orientation among managers in different functional departments."[2] Differentiation exists because the various functional departments of a firm deal with different parts of the external environment. For the organization to be effective, a relative differentiation between functional departments must be large or small depending upon whether the organization is operating in an uncertain environment (requiring a high degree of differentiation between functional departments) or in a certain environment (requiring a low degree of differentiation). Thus, in relatively uncertain environments, the departments of the more effective organizations will be highly differentiated in terms of structure, interpersonal orientation, time orientation, and goal orientation, while the opposite will be true of effective organizations in relatively certain environments.

Further, whatever the degree of differentiation that exists, Lawrence and Lorsch showed that for an organization to be effective, it is necessary, also, that it achieve a high level of integration of the differentiated functional departments around the dominant strategic issue facing the organization.[3] (Integration is defined as " . . . the quality of the state of collaboration that exists among departments that are required to achieve unity of effort by the demands of the environment.")[4]

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[1]Lawrence and Lorsch, pp. 23-53. [2]Ibid., p. 11.

[3]Ibid., pp. 23-53. [4]Ibid., p. 11.

Environmental uncertainty was measured in terms of "certainty of information" and "time span of feedback."[1] Figure 2-26 shows how three effective organizations in industries of high, moderate, and low environmental uncertainty (plastics, foods, and container industries, respectively) were found to meet different requirements for differentiation and integration. The other three organizations in the study, that failed to achieve the same advantageous "fit" with their specific environments, were low performers. Figure 2-26 also suggests that the three effective organizations were able to achieve high integration in their respective environments through emphasis on different types of integrating devices that seemed to fit those particular environments. Similarly, uncertainty in the environment apparently had differing affects on the distribution of influence in the organization.

Of particular relevance here, the Lawrence and Lorsch research provides a basis for hypotheses about influences of the environment on leadership behavior. They used Fiedler's Least-Preferred Coworker instrument to measure the interpersonal orientation of managers in the various functional departments, a measurement that was used to help determine relative differentiation scores between departments, and later, between organizations. The researchers found, consistent with Fiedler's Contingency Model, that members of the production departments, whose tasks were relatively certain, scored low on the LPC instrument and were consequently described as having task-oriented interpersonal styles. Sales personnel, whose tasks were somewhat

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[1]Ibid., pp. 28-30; 247-50.

FIGURE 2-26

CHARACTERISTICS OF EFFECTIVE
ORGANIZATIONS IN DIVERSE ENVIRONMENTS

Industry	Environmental Uncertainty	Differentiation	Integration	Type of Integrative Device	Hierarchial Influence
Plastics	High	High	High	Teams, roles, departments, hierarchy, plans, and procedures	Evenly distributed
Foods	Moderate	Moderate	High	Roles, plans, hierarchy, procedures	Evenly distributed
Container	Low	Low	High	Hierarchy, plans, and procedures	Top high, bottom low

SOURCE: Adapted from Jay W. Lorsch, "Introduction to the Structural Design of Organization," in Kast and Rosenzweig, Contingency Views, Fig. 5, p. 189.

intermediate with respect to certainty, tended to have high LPC scores and were described as relationship-oriented. Research personnel generally had LPC scores intermediate to those of Production and Sales managers. However, the scores of applied researchers tended toward those of the Sales departments while scores of basic researchers approached the generally low LPC scores of Production department managers. The leadership findings of the Lawrence and Lorsch research are summarized in Figure 2-27.[1]

FIGURE 2-27

LAWRENCE AND LORSCH RESEARCH FINDINGS

Functional Department	Relative Task Certainty	Interpersonal Orientation of Managers
Production	Certain	Task
Sales	Moderate	Relationship
Applied Research	Moderate	Relationship
Basic Research	Uncertain	Task

SOURCE: Lawrence and Lorsch, pp. 33-34.

The Lorsch and Morse elaboration. Whereas Lawrence and Lorsch emphasized the "fit" between a limited number of the organization's internal characteristics and the relevant external environment, Lorsch and Morse added the human element, or "individual predispositions" of members.

[1]Ibid., pp. 33-34.

The latter sought a "three-way match" to explain effective performance and "members' individual feelings of competence" in organizations.[1]

The research study was conducted in ten units from five companies selected so as to have representation from both certain and uncertain environments. Comparable pairs of effective and ineffective operating units were selected from within each company. In this way "matched pairs" from 4 manufacturing plants and 6 research laboratories provided the data that were analyzed.[2] The data supported the researchers' selection of the manufacturing plants as having relatively certain external environments and the research laboratories as having relatively uncertain external environments.[3]

Lorsch and Morse found that the external environment had a powerful influence on the personal predispositions of organizational members, regardless of the relative effectiveness of the organization. For example, they discovered that when the external environment was certain, organization members tended to be low in integrative complexity, tolerance for ambiguity, attitude toward authority (not uncomfortable in strong, controlling authority relations), and attitudes toward individualism (prefer to be, and work, in groups). Individuals working in organizations operating in relatively uncertain external environments, however, were found to be high on these same personality variables, regardless of whether their organization was efffective or not.[4]

Effective and ineffective organizations could be distinguished, however, by the way their internal environments fit the demands of the external

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[1]Lorsch and Morse, p. 113. [2]Ibid., pp. 19-21.

[3]Ibid., pp. 21-30. [4]Ibid., pp. 111-13.

environment. In an external environment of high certainty, effective manufacturing plants apparently accommodated by developing strong techno-economic goal orientations, strong influence and control systems, and relatively tight work control systems. The ineffective plants did not. Further, consistent with the good fit between external and internal environments and high performance, members of the more effective plants developed high feelings of "competence," (confidence in their own competencies).[1] Members of ineffective plants exhibited relatively low feelings of competence. Figure 2-28 contrasts the distinctive characteristics of the internal environments of the effective and ineffective manufacturing plants operating in external environments of high certainty.

FIGURE 2-28

INTERNAL ENVIRONMENTS OF
PLANTS UNDER HIGH CERTAINTY

Effective Plants	Ineffective Plants
Strong techno-economic goal orientation	Weak techno-economic goal orientation
High Structure	Low Structure
Influence concentrated at top	Much influence at all levels
Directive supervision	Participatory supervision
High coordination of work	Low coordination of work
Confrontation mode of conflict resolution	Forcing mode of conflict resolution

SOURCE: Adapted from Lorsch and Morse, Table 6-1, pp. 112-13.

[1] Ibid., p. 39.

Effective and ineffective laboratories can also be distinguished by the fit of their internal and external environments. However, the relative uncertainty of the external environment for laboratories demands a different sort of internal environment than that exhibited by the effective manufacturing plants. The contrast between internal environments of effective and ineffective research laboratories is evident in Figure 2-29. Again (as with the effective manufacturing plants), members of the effective laboratories displayed high senses of competence, in reflection of the three-way fit between member characteristics, the unit's internal environment, and the external environment.

FIGURE 2-29

INTERNAL ENVIRONMENTS OF
LABORATORIES UNDER HIGH UNCERTAINTY

Effective Laboratories	Ineffective Laboratories
Long-term time orientation	Short-term time orientation
Strong scientific goal orientation	Weak scientific goal orientation
Low structure	High structure
Much influence at all levels	Low influence concentrated at top
Participative supervision	Directive or laissez-faire supervision
Low coordination of work	High coordination of work
Confrontation mode of conflict resolution	Forcing mode of conflict resolution

SOURCE: Adapted from Lorsch and Morse, Table 6-1, pp. 112-13.

The model of leadership which the Lorsch and Morse research suggests is consistent with the Fiedler and/or Tannenbaum and Schmidt theories. At the macro-organizational level, leadership behavior must fit the conditions of the organization's external environment, its internal environment, and the personality predispositions of subordinates. The relationships envisioned in the Lorsch and Morse model are summarized in Figure 2-30 below.

When the external environment is certain and programmable and the internal environment is "controlling", subordinates' personality predispositions will tend to match and the appropriate leadership behavior is, on the average, directive or boss centered. Since this describes a situation highly favorable for the practice of leadership, the researchers suggest, from the work of Fiedler and Lawrence and Lorsch, that behavior of a task-oriented nature is appropriate. At the other extreme, when the external environment is uncertain and complex, the internal environment of the effective organizations will tend to be "autonomous and loose," and members (all members, not just those of effective organizations) will tend to have similar personality predispositions. The appropriate leadership behavior will tend to be, on the average, participative--subordinate centered and, from Fiedler and Lawrence and Lorsch, task oriented.

Lorsch and Morse imply also, based on the Lawrence and Lorsch findings, that in environments of intermediate certainty, Fiedler's relationship-oriented behavior is appropriate, but leave unanswered the question of whether that dimension of behavior should be combined with a directive or participative style. The fact that different functional departments interact with different parts of the environment implies that

FIGURE 2-30

A CONTINGENCY APPROACH TO LEADERSHIP

Appropriate leadership behavior	External environment	Internal Environment	Subordinate's personality predispositions
Directive-boss-centered (Task-oriented)	Certain and programmable	Controlling and tight and few expectations about participation	Low need for independence Low tolerance for ambiguity Little knowledge of, and information about, the work
Directive/participative? (Relationship-oriented)			
Participative-subordinate centered (Task-oriented)	Uncertain and complex	Autonomous and loose; members expect to participate in decisions	High need for independence High tolerance for ambiguity Much knowledge and information about the work

SOURCE: Lorsch and Morse, p. 131.

within a given organization, the appropriate style for leaders in one department (e.g., sales) may be participative while those in another (e.g., production) may be directive.

The Lorsch and Morse research draws attention to the environment as a powerful contingency variable which influences the relationship between leader behavior and performance. The external environment creates demands on the internal environment in such a way as to predispose individuals' personalities in specific directions and to require leaders to behave in specific ways if they are to be effective.

Because of the findings relating to the required fit between individual predispositions and the environment, the theory raises a question about the universality of leadership. Can a manager, for example, be transferred from the production department to the sales department and be as effective in the new environment as he was in the old? The Lorsch and Morse research supports the Fiedler position that he can't. They suggest that " . . . a leader's actual style is closely tied to his personality; and is difficult to alter," and that training, if it is to help, must be geared to the total environment of the work place.[1]

The most important contribution of the Lorsch and Morse theory is the implication that leadership must be examined in the context of the organizational environments, internal and external, in which it takes place. Leadership, in other words, should be examined from a systematic perspective. Research in leadership must be reoriented from the small group level to the macro-organizational level.

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[1]Ibid., p. 133.

Contingency Theory--The Wave of the Future?

The contingency approach may very well be " . . . the path out of the existing theoretical jungle . . ." in leadership.[1] Jacobs supports this view (though with reservations):

> It would be inappropriate to criticize the concept of contingency theories of leadership. The developing literature strongly suggests that contingency approaches probably will, at least eventually, produce major advances in our understanding of human behavior in organizations.[2]

The plethora of contingency theories of organization and management appearing in the literature indicate the widespread support of the approach. Contingency theories are helping to explain inconsistencies and contradictions in earlier research and appear to provide bases for gaining new understanding. They offer hope for integrating the various trait, behavioral, and interaction approaches. But, there are problems. For example, Korman, who interprets the term "contingency theory" quite narrowly, expresses a cautious enthusiasm about the "promise" of contingency models. He defines contingency theory as any theory that has the following functional form:

> If x = some dimension of leader behavior, y = some criterion by which the effectiveness of the leader may be determined, and

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[1]Luthens, pp. 67-72.

[2]T. C. Jacobs, "Discussant Comments," in Contingency Approaches to Leadership, ed. James G. Hunt and Lars Larsen (Carbondale, Ill.: Southern Illinois University Press, 1974), p. 185.

> z = some environmental or situational variable, then the correlation between x and y is predicted to assume a different functional form at different levels of z.[1]

Such models are seen to present "difficult" methodological problems. If they are to realize their potential and be useful to practitioners, it is particularly necessary that the constructs applied be valid and that the researcher " . . . know what each level of the contingency variable means in terms of behavioral significance."[2]

Korman suggests that lack of construct validity and inadequate measurement in leadership theory provide justification for redirection of research effort toward "noncontingency" theories of leadership. Such research would " . . . study the effects of personal variables and environmental variables . . . as separate variables affecting behaviors, and as joint variables affecting behavior in either an additive or multiplicative relationship to one another."[3] The objective of such redirection would be to lay sound empirical foundations for the development of sophisticated contingency models.[4]

Related to the methodological problems cited by Korman is the growing deluge of potential contingency variables being uncovered by leadership

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[1]Abraham K. Korman, "Applications of Management Theory: A Review of the Empirical Literature and a New Direction," Academy of Management, Proceedings of the Thirty-second Annual Meeting (Minneapolis, Minn.: n. p., 1972), p. 170.

[2]Ibid., pp. 170-73.

[3]Abraham K. Korman, "Contingency Approaches to Leadership: An Overview," in Hunt and Larson, Contingency Approaches, p. 194.

[4]Ibid., p. 173.

researchers, reflecting the complex nature of the environment, the growing popularity of situational approaches, or both. Figure 2-31 lists situational factors that have been identified in three recent reviews of the leadership literature as having influence on leader behavior. Michaelsen's study investigated research in which leader behavior was treated as a dependent variable. He concluded that " . . . leader behavior is a product of the interaction of personal and situational variation", and identified the situational dimensions shown.[1] Kerr and colleagues reviewed leadership literature relating to the behavioral dimensions consideration and initiating structure and identified thirteen variables that "significantly" moderated the relationship between leader behavior and effectiveness criteria.[2] Barrow's list of environmental factors that influence leader behavior was derived from a broad survey of the leadership literature. He emphasizes that many of the factors interact reciprocally with leader behavior; that is, the leader is influenced by environmental factors while simultaneously influencing his environment.[3]

Figure 2-31 illustrates the problem of construct validity stressed by Korman. The three lists, in several instances, deal with similar ideas (e.g., " job level," "hierarchical level," and "supervisory level"), but the variables are operationalized in the research in a multitude of ways. Hence, there is a question as to whether or not they are measuring the same thing.

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[1]Michaelsen, "Situational Conditions," pp. 18-27.

[2]Kerr, et al., pp. 65-71.

[3]Barrow, "Leadership Effectiveness," pp. 10-11.

FIGURE 2-31

SITUATIONAL VARIABLES WHICH INFLUENCE LEADER BEHAVIOR

Michaelsen Situational Dimensions[1]	Kerr et al. Moderator Variables[2]	Barrow Environmental Factors[3]
1. Group Composition Subordinate Values Group Cohesiveness Group Tenure	1. Pressure	1. Subordinate Behavior
2. Interpersonal Relations Acceptance by Subordinates Status Differentiation	2. Task Related Satisfaction	2. Task Complexity
3. Subordinate Task Subordinate Interdependence Technological Sophistication	3. Subordinate Need for Information	3. Task Type
4. Organizational Structure Hierarchical Level Subordinate Group Size	4. Job Level	4. Technology
5. Organizational Climate	5. Subordinate Expectations	5. Size of Project
	6. Congruence of Leadership Styles	6. Country's State of Industrial Development
	7. Subordinate's Organizational Independence	7. Leader's Supervisor's Style
	8. Leader Upward Influence	8. Group Influence and Norms
	9. Size of Work Group	9. Supervisory Level
	10. Group Leader-Member Relations	10. Span of Control
	11. Subordinate Needs	11. External Threat and Stress
	12. Subordinate Internal Orientation	12. Leader Power
	13. Subordinate Authoritarianism	13. Time Demands
		14. Organizational Size
		15. Organizational Climate

[1]Michaelsen "Situational Conditions," pp. 18-27.

[2]Kerr et al., "Toward a Contingency Theory," pp. 65-71.

[3]Barrow, "Leadership Effectiveness," pp. 10-11.

The above survey of leadership theory illustrates the heavy emphasis on the micro-models in the literature. That is, most of the research has focused on the relationship between leader behavior and performance or satisfaction in small groups. There are few leadership oriented studies of the scope and magnitude of the Lorsch and Morse or the Bowers and Seashore research.

Jacobs, in commenting on a recent macro-level study by Olstead, stated:

> The focus on macro variables stands in rather sharp contrast to the plethora of studies focusing on micro variables, with which our existing psychological literature abounds. The significance of a macro focus would seem to be logically apparent when one notes that one great source of relevance for the study of influence processes [including leadership] is their seeming significance for the outcomes, either good or bad, of formal organizations.[1]

This micro focus of leadership theory is attributable, in large part, to the difficulty of gaining access to large organizations and the relatively high costs to both the organization under study and the research sponsor.[2] These difficulties must be overcome if leadership is to be examined under the influence of potentially powerful macro-variables, such as technology, organizational climate, and organization structure, that determine the the internal conditions of organizational systems. In Heller's words, "it

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[1]T. O. Jacobs, "Discussant Comments," in Hunt and Larsen, Contingency Approaches, p. 183.

[2]Frank A. Heller, Managerial Decision-making: A Study of Leadership Styles and Power Sharing Among Senior Managers (London: Tavistock, 1971), p. xiv.

becomes increasingly desireable to relate variables at the molecular level of analysis (interpersonal relations) to various levels of molar analysis, such as the structure of the organizational unit and the socio-technical systems within which the social behavior operates."[1]

Summary

Because of the perceived importance of good leadership for organizational effectiveness, a considerable body of literature has evolved concerning the subject, particularly over the last twenty years. Although a great deal of knowledge and understanding has been gained, the traditional approaches, i. e., the "great man," trait, behavioral, and interaction approaches, have been somewhat disappointing because of inconsistent and contradictory research findings.

Evidence is mounting to indicate that the reason for the inconsistent and contradictory findings is that there is no "one best" style of leadership. The most effective style seems to depend (1) upon differences in leadership situations or (2) upon the influence of powerful moderating variables as explained by the various "contingency" theories. The former, the "situational" (Gallilean) theories, are more realistic in that they deal with specific cases. However, they have less relevance for practicing managers because they do not permit useful generalization.

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[1]Ibid., p. 3.

On the other hand, the contingency (mid-range) theories identify powerful variables that moderate the relationship between leader behavior and various criteria of organizational effectiveness. Such theories are much more generalizable and, therefore, actionable for pragmatic executives. Since, potentially, the most powerful (and therefore the most promising for further research) moderating variables are macro-variables such as organizational type, this research is oriented in that direction.

The next Chapter discusses leadership theory in the military environment and describes a macro-level study of leadership conducted by the U. S. Army that provided the data analyzed in this research.

CHAPTER III

MILITARY LEADERSHIP AND RESEARCH

Importance of the Study of Military Leadership

Whereas the importance of leadership has been discussed earlier in general terms, the phenomenon takes on special significance when examined in the military context.

Historical Interest

Like other organizations, military organizations require good leadership in order to perform effectively. But, historically, leadership has assumed far greater significance to military organizations, because the potential short run cost of membership (the very life of the member) in the organization far outweighs the tangible benefits to be derived from participation. Consequently, military organizations have traditionally relied upon coercion to enforce membership, while seeking leaders who, by force of personality and behavior, can transform large, unwilling masses of conscripts into highly motivated and disciplined military instruments. Leadership creates the morale, esprit, and elan that differentiates between the effective and ineffective military organization. Thus, military men have continued to concern themselves with

matters of leadership.[1] "The military . . . have recognized the usefulness of the clinical approach . . . and have studied and pondered at length during intermittent years of peace--on garrison duty, in war colleges and in country retreats--the facts and the lessons of actual experience and their implications for oncoming generations of leaders and administrators."[2] This effort has, historically, enabled America to meet leadership needs for national defense and mobilization.

National Defense and Mobilization

During eight major wars (through the Korean episode) a relatively high quality of military leadership was one of the outstanding characteristics that distinguished our military operations. Time and time again the American armed forces have demonstrated an ability to expand a small peacetime establishment to a level many times its original size in order to achieve National Defense objectives, and to do so quickly. As expressed by Glover and his associates:

> The ability of military organizations to assemble and to arrange in workable relationships vast numbers of men; to train them quickly in an extraordinary array of highly technical skills; to move enormous, complex organizations over great distances on operations of astounding intricacy all attests to the fact that a great deal has indeed been learned from history and study as regards getting large complex undertakings to function.[3]

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[1]John Desmond Glover, et al., The Administrator: Cases on Human Aspects of Management (Homewood, Ill.: Richard D. Irwin, 1973), p. ix.

[2]Ibid. [3]Ibid.

These past accomplishments have been widely attributed, at least in part, to our differential advantage in being able to rapidly transform civilians from all walks of life into soldiers, with representative numbers available to assume leadership positions at all levels of the hierarchy and all segments of the military technology. But, increasing technological sophistication and increases in educational levels have brought about growing apprehension about the quality of military leadership and our ability to maintain a differential advantage in leadership.[1]

Our most recent experience in warfare has also raised serious questions about the adequacy of our application of traditional military leadership concepts. Indeed, Bowers and Bachman, in a recent study, found that:

> There is a philosophy-of-management problem which permeates the Navy. It shows up in a rather pervasive (top-to-bottom) perception of the organizational climate as negative in its view of human resources and in motivational conditions.[2]

Alarmingly, the problem noted in the study is most pervasive with "fleet units" (in contrast to "shore-based units") where organizational climate conditions and leadership behaviors are considered the most serious

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[1]See, for example, Samuel A. Stouffer et al., The American Soldier, Vol. I: Adjustment During Army Life (Princeton, N. J.: Princeton University Press, 1949), pp. 364-65. This study suggested a growing disenchantment of the enlisted ranks with traditional autocratic leadership practices.

[2]David G. Bowers and Jerald G. Bachman, Military Manpower and Modern Values (Ann Arbor, Mich.: Institute for Social Research, 1974), p. 130.

problems.[1] Similar problems have been noted in the other services.[2] Whether the origins of these problems can be traced to changing social values, increasing technological sophistication of our armed forces, or opposition to the Vietnam War, the implications for mobilization and National Defense are, indeed, serious.

Requirements for Military Leaders

The sheer numbers of leaders trained and utilized by the military should, in itself, give high priority to research on military leadership. In December, 1973, reflecting post-Vietnam manning levels, the Defense Department reported a total of 308,805 officers in the four services, in grades from Warrant Officer through General of the Army (or Fleet Admiral). An additional 12,829 individuals were in training for officer status. All of these officers are considered by the services to be leaders first and managers second.[3] The problem of sustaining this vast force of leader-managers in the face of typically high turnover rates imposes a tremendous burden on leader training elements.

In view of the anticipated crunch in managerial manpower in the future, the demands of the military forces for leader-managers make it

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[1]Ibid., p. 5.

[2]See, for example, Eugene Linden, "The Demoralization of an Army: Fragging and Other Withdrawal Symptoms," Saturday Review (January 8, 1972), p. 12; and General Hamilton H. Howze, "Military Discipline and National Security," Army (January, 1971), pp. 11-15.

[3]U. S. Department of Defense, Selected Manpower Statistics (Washington, D. C.: Directorate for Information Operations, 1974), p. 31.

imperative that the Armed Forces make best possible use of scarce management resources. Along these lines, Brown and Smolinski, advocating a contingency model of leadership effectiveness for military managers, argue:

> The current trend within the Department of Defense is to reduce the force structure without impairing mission accomplishment. To this end, emphasis is being placed upon improving the management of human resources. Managers at all levels within the Department of Defense are being asked to do more with fewer people. If they are expected to achieve more with fewer people, then there should be an organized effort to provide those managers with methods for improvement in managing human resources.[1]

Our military establishment has traditionally sustained a relatively high rate of turnover of its leadership (particularly at the junior levels). Individuals, when they leave the service, take their learned personal styles and accumulated knowledge of leadership techniques with them. Many, even those embarking on civilian management careers, receive no further formal leadership training. The Armed Forces have provided, and can be expected to continue to provide, large numbers of trained and semi-trained leaders to civilian segments of American society.

All of the above considerations serve to point up the urgent demand for application of the most current leadership theory and knowledge in military organizations. They also justify the expenditure of resources and effort for research into special leadership problems peculiar to the military environment.

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[1]David I. Brown and Robert A. Smolinski, "The Contingency Model of Leadership Effectiveness and its Implications for Military Managers" (Wright-Patterson Air Force Base, Ohio: Air Force Institute of Technology, August, 1974), p. 1.

Research Contributions of the Military Establishment

The interest of the American military establishment in leadership has been intense and continuous, especially since World War II. The military services have applied significant resources to the problem and have made significant contributions to the development of new knowledge in the field of leadership. These contributions have resulted from research activity, conducted (1) internally by military service personnel and (2) externally through the award of research grants and contracts to the academic community and behavioral science consultant firms.

Internal Research Activity

The internal research activity is manifested largely through numerous studies produced by staff and faculty of the various service schools. For the Army this includes the Army War College, the Command and General Staff College, and the Continental Army Command with its vast network of branch schools and centers (particularly the Infantry Center and School at Fort Benning). Recently, the U. S. Army Administration Center, Fort Benjamin Harrison, was assigned responsibilities for keeping Army leaders informed about research findings in leadership.[1]

For the Navy, agencies involved in leadership research include The U. S. Naval Academy, the Naval Staff College, the Naval Personnel

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[1]U. S., Department of the Army, Monograph #7, A Progressive Model for Leadership Development (Fort Benjamin Harrison, Ind.: U. S. Army Administration Center, June 1975), p. i.

Research and Development Center at San Diego, and the Naval Post Graduate School, Monterey. Air Force organizations include the U. S. Air Force Academy, the Air University at Maxwell Air Force Base, and the Air Force Institute of Technology at Wright-Patterson Air Force Base. In May, 1976 a Leadership and Management Development Center was established at the Air University to coordinate leadership doctrine and research for the Air Force.

The amount of leadership research produced internally over the last three decades by the military services is prodigious and includes both published and unpublished material. Generally, however, the research has been uncoordinated and consists of individual studies of relatively small scope. In spite of (perhaps, because of) the tremendous volume of literature generated, there has been an absence of comprehensive reviews of the military research literature, even within the individual services.

Nevertheless, three classic studies relevant to leadership were conducted in WWII in response to the urgent demands for knowledge about human behavior in combat. The first of these was the monumental world-wide survey-research of Stouffer and his associates on the adjustment of the American soldier to military life and his subsequent behavior overseas. The study was conducted for the U. S. Army and yielded sparse (though important) findings relevant to leadership under conditions of training and combat.[1] Among other things, the Stouffer studies provided an early indication that more successful leaders tended to be high on <u>both</u> supportive and structuring behaviors.

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[1]Stouffer et al., <u>Adjustment During Army Life</u>, pp. 1-29.

The second classic study, or group of studies, was the work of General S. L. A. Marshall for the U. S. Army. Marshall, a military historian in World War II, developed a technique for conducting post-action interviews with survivors of small unit actions.[1] His reports provided the Army with valuable knowledge concerning individual, group, and leader behavior in combat, so much so that he was called out of retirement to continue his work during the Korean and Vietnam conflicts.[2] Marshall's work has been studied and applied in the formulation and teaching of military leadership doctrine, particularly by the combat arms of the Army.

The other internally generated research frequently cited in the leadership literature is the Office of Strategic Services study conducted during World War II but reported after the war.[3] The principle contributions of that study were twofold: (1) the documented techniques for selecting personnel for behind-the-enemy-lines operations, techniques which stimulated the development of the contemporary concept of the corporate "assessment center," and (2) the conclusion that emergent leadership was a situationally determined phenomenon.[4]

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[1]S. L. A. Marshall, Men Against Fire (New York: William Morrow and Company, 1947).

[2]See, for example, S. L. A. Marshall, Battles in the Monsoon (New York: William Morrow and Company, 1967); and S. L. A. Marshall, The Fields of Bamboo (New York: The Dial Press, 1971).

[3]Office of Strategic Services, Assessment of Men: Selection of Personnel for Office of Strategic Services (New York: Holt, Rinehart & Winston, 1948).

[4]Douglas W. Bray, et al., p. 17; and Samuel H. Hays and William N. Thomas, eds., Taking Command (Harrisburg, Pa.: Stackpole Books, 1967), p. 213.

Numerous lesser known studies evolved from the internal efforts of the military services during World War II and Korea. Reviews of the leadership literature for the World War II and Korea eras may be found in Jenkins and Sanford, respectively.[1]

Jenkins reports a group of studies conducted as a part of an extensive wartime "Army Air Force Aviation Psychology Program," that constituted a major allocation of resources to the study of aspects of leadership.[2] The psychology program was initiated in response to the problem of selecting and classifying potential military aviators. The program was expanded during the war to encompass studies of combat leadership, reaction of personnel to the strain of combat, and redistribution of Army aviators upon return to the United States from combat tours. The combat leadership studies indicated that the more effective aviator-leaders were (1) proficient in flying and aerial tactics, (2) considerate of their men, (3) consistent in job performance, and (4) sincere and self-sacrificing.[3] Findings from the psychology program were being reported as late as 1950.[4]

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[1]William O. Jenkins, "A Review of Leadership Studies with Particular Reference to Military Problems," Psychological Bulletin 44 (January, 1947: 54-79; and Fillmore H. Sanford, "Research on Military Leadership," in Psychology in the World Emergency, ed. J. C. Flanagan (Pittsburg: University of Pittsburg Press, 1952), pp. 17-74.

[2]Jenkins, p. 66.

[3]Frederick Wickert (ed.), Psychological Research on Problems of Redistribution, Army Air Forces Aviation Psychology Program Research Reports, No. 14 (Washington, D. C.: Government Printing Office, 1947): 54-79.

[4]See, for example, Merrill Roff, "A Study of Combat Leadership in the Air Force by Means of a Rating Scale: Group Differences," Journal of Psychology 30 (1950): 229-39.

Sanford's review of military leadership is based on a paper produced for the Research and Development Board of the Department of Defense. He reviewed the historical development of techniques used internally by the military to select, appraise, and train military leaders.[1] Sanford recognized at a relatively early date the situational aspects of leadership in the military environment. For example, he stated:

> . . . the officer who is good behind an administrative desk may never be able to perform the functions of a combat leader . . .. If we are interested in getting leaders who are really outstanding in the actual performance of leadership tasks, we had perhaps better think in terms not of 'general worth to the service,' but in terms of the fit between (a) the leader's abilities, and (b) the concrete demands of actual military situations.[2]

In spite of the abundance of internal leadership-oriented research, the major contribution of the military services has been through their external research activity.

External Research Activity

The Departments of the Army, Navy, and Air Force have made substantial contributions to the evolving body of knowledge about the leadership phenomenon through (1) sponsorship of research grants to the academic community and (2) contractual arrangements with behavioral science consultants working with military units in the field.

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[1]Sanford, pp. 17-45. [2]Ibid., pp. 32-33.

The Ohio State Studies

Perhaps the most important contribution to leadership theory and research was the sponsorship by the Office of Naval Research (ONR) of a series of studies in Naval Leadership, commencing in 1945. Conducted by Shartle, Stogdill, and their colleagues at the Ohio State University, this research provided the initial impetus to what has been described extensively in Chapter II as the "The Ohio State Studies."[1] Consequently, the research will not be discussed in further detail here. Although other sponsors contributed financial support to the program (including the U. S. Air Force's Human Resources Research Laboratory), the Navy's sustained support, in the form of funding and access to installations and personnel, was an instrumental factor in the substantial progress achieved by the Ohio State researchers.

The Michigan Leadership Studies

Almost contemporaneously with the Ohio State Studies the ONR was sponsoring a broad program of basic behavioral research at the University of Michigan. The leadership portions of that research have been described in Chapter II. Simultaneous contractural support was provided by the Navy to Michigan's Research Center for Group Dynamics and its Survey Research Center.[2] Likert has given the ONR credit for having given the

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[1]Shartle, p. 119.

[2]See the series of articles by Leon Festinger; John R. P. French, Jr.; D. G. Marquis, Harold Guetzkow, and R. W. Heyns; Daniel Katz; Robert L. Kahn; Eugene Jacobsen; Nancy C. Morse; and Angus Campbell in Groups, Leadership and Men, ed. Harold Guetzkow (New York: Russell & Russell, 1963), pp. 28-105.

Institute for Social Research "generous" support for its "large-scale program of research," particularly during its "formative years."[1] The ONR has continued to support studies in leadership research at the University of Michigan in recent years, although its support appears to be less dominant than in the early years.[2]

The Havron Studies

Havron and McGrath report a series of 14 studies conducted by behavioral science consultant firms (Psychological Research Associates and Human Sciences Research, Inc.) with which they were associated during the period 1951-1957.[3] The studies were sponsored, variously, by the following military agencies: (1) Personnel Research Branch of the Adjutant General's Office, U. S. Army; (2) the Survival Research Laboratory, Air Force Personnel and Training Research Center; (3) the Operations Research Office, John Hopkins University; and (4) the Combat Operations Research Group, of the Continental Army Command. Although the studies were not

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[1]Likert, New Patterns of Management, p. 5.

[2]Studies funded by ONR at the University of Michigan include: James C. Taylor, "An Empirical Examination of a Four-Factor Theory of Leadership Using Smallest Space Analysis," Organizational Behavior and Human Performance 6 (1971): 249-66; Michaelsen, "Effects of Situational Conditions," pp. 18-27; and Larry K. Michaelsen, "Leader Orientation, Leader Behavior, Group Effectiveness and Situational Favorability: An Empirical Extension of the Contingency Model," Organizational Behavior and Human Performance 9 (1973): 226-45.

[3]M. Dean Havron and Joseph E. McGrath, "The Contribution of the Leader to the Effectiveness of Small Military Groups," in Leadership and Interpersonal Behavior, ed. L. Petrullo and B. M. Bass (New York: Holt, Rinehart and Winston, 1966): pp. 167-79.

designed to investigate leadership "per se," they involved " . . . about 500 small military task groups . . ." under simulated combat and survival conditions.[1] The researchers, based on findings from the thirteen studies, identified a number of predictors of effective leadership in small groups; namely, the leader's ability, job-knowledge (the best predictor), knowledge of men, emotional stability, role behavior, and willingness to act. They also found that there was no one best leadership pattern.[2] The series of studies also generated improved small group training methods, which the researchers claimed were significantly better than traditional methods being used at that time by the military.[3]

The Torrance Studies

Most of the Torrance studies were conducted by E. Paul Torrance and his colleagues as a part of an Air Force Survival Training program for the Air Force Personnel and Training Research Center.[4] Torrance's normative interaction theory, based on the survival training research, is oriented toward enhancing leader effectiveness under stressful conditions through application of knowledge of the dynamics of informal groups. The Torrance research describes the effect of stress on group performance in terms of four group "linkages"--power, affect, communication, and goal orientation. These linkages determine, apparently, the level of performance of a group.

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[1]Ibid., p. 168. [2]Ibid., p. 176. [3]Ibid., pp. 174-75.

[4]E. Paul Torrance, "A Theory of Leadership and Interpersonal Behavior Under Stress," in Petrullo and Bass, pp. 100-117.

The effects of stress, in the Torrance model, vary depending upon the situational (mediating) variables: quality of leadership, interpersonal behavior, duration, and intensity. Examples of findings from the Torrance research are that, under stress, (1) the leader should be a regular member of the group, (2) the leader should use group decision-making techniques, (3) members perform better when permitted a high degree of self determination and reinforcement, and (4) members are more tolerant of strong leadership. The Torrance research and theory have special relevance for the military services because the application of military force requires that personnel be trained to operate effectively under highly stressful conditions.

Fiedler's Contingency Model

For the last two decades the military services have been contributing support for research on Fiedler's Contingency Model, described earlier in Chapter II. Studies involving the Contingency Model have been conducted in Army infantry squads, tank crews, anti-aircraft artillery units, combat engineer squads, field artillery batteries, basic training companies, mess halls, and ROTC units. The Navy has allowed researchers to carry out studies involving aviation cadets, NROTC cadets, and Naval aviation maintenance personnel. The Air Force supported a test of the Contingency Model with B-29 crews.[1] In addition, the Office of Naval

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[1]Fiedler, A Theory, pp. 71-85, 121-25; Louis J. Csoka and Fred E. Fiedler, "The Effect of Military Leadership Training: A Test of the Contingency Model," Organizational Behavior and Human Performance 8 (1972): 395-407; and Csoka, p. 28.

Research has provided funding for at least eight other studies related to the Fiedler Theory of Leadership Research, but not involving military personnel. It is obvious that the military services have contributed significantly to the development of the Contingency Model.

Conclusion

The studies cited above, external and internal, are but the tip of the iceberg in relation to the total leadership activity attributable to the military services. Numerous individual studies, not reported here, have been accomplished. The Human Resources Research Organization (HumRRO), for example, has produced some high quality research, as exemplified by Jacobs's classic study, Leadership and Exchange in Formal Organizations. That HumRRO study was sponsored by the Navy with the goal of integrating and interpreting the leadership literature.[1] Many unpublished studies accomplished under contract with Department of Defense agencies are available through the Department of Commerce's National Technical Information Services. The archives of the various service schools contain a multitude of research, much of which remains largely unexploited. A comprehensive review of the literature on military leadership research has yet to be done.

Obviously, the Army, Navy, and Air Force have made significant contributions to the advancement of knowledge concerning the leadership phenomenon, and their efforts are continuing. The next section describes

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[1]Jacobs, Leadership, pp. vii-viii.

in considerable detail one of the most extensive leadership research programs ever undertaken by the military services, the Army leadership study of 1971. The study is given detailed attention here because (1) the research involved the gathering of data concerning leadership behavior from over 30,000 Army personnel of all ranks, from 63 Army installations in the U. S. and overseas; (2) the research is of relatively recent origin; (3) the Army has continuing interest in analysis and interpretation of the data accumulated; and (4) availability of the data bank provided an opportunity to seek answers to research questions of interest not only to the Army, but to leadership scholars in general.

The Army Leadership Studies

Spurred largely by the public demand for an end to selective service and a return to the pre-World War II policy of a volunteer peacetime military establishment, the U. S. Army War College, in 1971, initiated a massive research project on leadership in the Army. The study was clearly a response to the problems raised by the need to build and maintain an all-volunteer Armed Force.

The All-Volunteer Armed Force

A major stimulus to research on leadership in the Armed Forces was provided by President Nixon's program to end the draft and to establish an all-volunteer Armed Force. The President's Commission on an All-Volunteer Armed Force, while recognizing the indispensability of placing military pay scales on a more competitive level with industry, stressed the importance

of " . . . improving the conditions of military service and the quality of military life", as a vital prerequisite for a successful all-volunteer force.[1] In the language of the report:

> The return to an all-volunteer armed force should improve the 'quality' of military life. Conscription enables the military to ignore individual dignity and desire, secure in the knowledge that the draft will replace those who do not like the military system. The entire military 'atmosphere'--the approach to training, discipline, and treatment of individuals--must be re-examined.[2]

Likewise, Janowitz, writing in 1973, called for dramatic changes in military management systems:

> There is sufficient experience to show that a combat ready force, fully sensitive to its "heroic" traditions and under the closest operational control, can be trained and maintained without brutality, personal degradation, or "Mickey Mouse" discipline. The armed forces must review their routines, for they do not fully realize the extent to which, in comparison with other highly effective forces, they are maintaining outmoded procedures.[3]

Improving the quality of military life so as to make the Armed Forces a more attractive environment for working and living required a reexamination of traditional military approaches to leadership. The U. S.

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[1]The Report of the President's Commission on an All-Volunteer Armed Force (New York: MacMillan Co., 1970), p. 63.

[2]Ibid., pp. 137-38.

[3]Morris Janowitz, "Toward an All-Volunteer Military," American Defense Policy, ed. Richard G. Head and Ervin J. Rokke (Baltimore: John Hopkins University Press, 1973), pp. 654-55.

Army War College (USAWC), with this objective in mind, instituted such a reexamination in 1971, by direction of the Chief of Staff, U. S. Army.

Description of the USAWC Study

Objectives and Theoretical Background

The USAWC Study, entitled Leadership for 1970's, was undertaken for the purpose of " . . . determining the type of leadership that would be most appropriate as the Army's sustainment procedures change from a reliance of periodic draft calls to reliance on voluntary assessions."[1] A derivative objective was " . . . to assess the validity of the Army's insititutional concept of leadership reflected in the commonly accepted 11 Principles of Leadership. . . ."[2] (A listing of these Principles is shown in Appendix A.)

The study was conducted during a six month period of 1971 by students and faculty of the USAWC. The theoretical basis for the study is Jacobs's social exchange approach to leadership in which leadership is seen as " . . . a transactional or exchange process between leader and led. . . ."[3] The effective leader strives to achieve an equitable balance in the informal "employment contract" by assuring the mutual satisfaction of the organization and its members. Drawing, also, on ideas from the Ohio State studies, the researchers assumed that leaders who are high on both the key dimensions

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[1]U. S., Dept. of the Army, Leadership for the 1970's, p. ii.

[2]Ibid., p. 1. [3]Jacobs, Leadership, p. 120.

of leader behavior, Initiating Structure and Consideration, are highest in overall effectiveness, since this optimizes the balance in the informal contract. In the words of the study:

> Unit members generally want the leader to be high on Consideration, while the leader's superiors (representing the organization) want him to be high on Initiation of Structure. . . . The successful Army leader, then, as 'go-between,' must balance between the needs of the individual (Consideration) and the needs of the organization (Initiation), tipping the scales in one direction or the other, according to the situation, in such a manner that, in the long run, both parties view their total payoff as 'fair'.[1]

According to the study's conceptual scheme, the Army's traditional Principles of Leadership are "general guidelines," "commonly understood," and "known to all levels of leadership," which serve as normative bases for leader behavior. Composite leader behavior (the sum of all individual leader behaviors in the organization) results in an overall leadership climate (following the Litwin and Stringer notion) which "mediates the informal contract."[2] Figure 3-1 provides this writer's interpretation of the conceptual foundation of the study.

Methodology

To operationalize the concept of leader behavior, the researchers developed a 43-item scale "derived from" the Ohio State studies but "adapted to the military environment."[3] Organization members used the scales to

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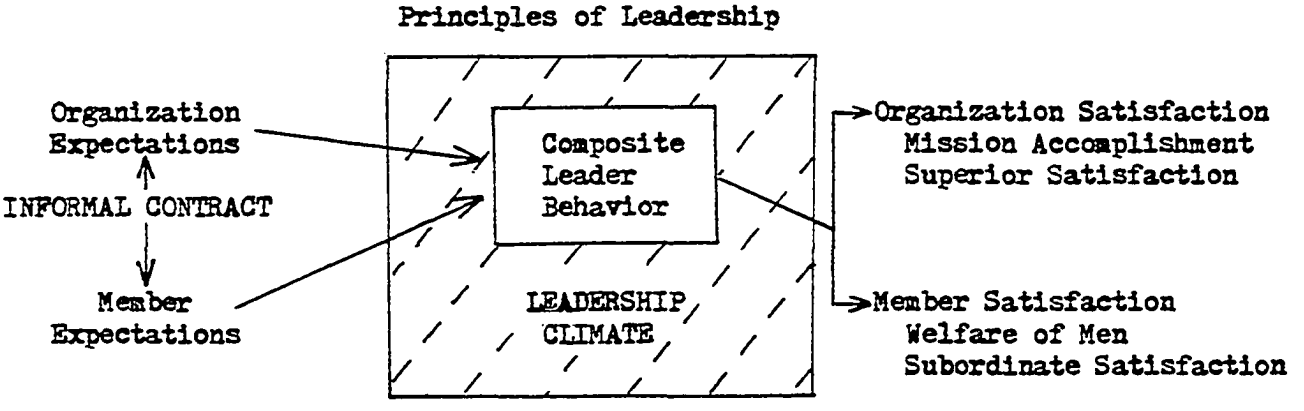
[1]U. S., Dept. of the Army, Leadership for the 1970's, p. 3.

[2]Ibid., pp. 4-5. [3]Ibid., pp. 5-6.

FIGURE 3-1

MEDIATION OF THE INFORMAL CONTRACT



describe three aspects of the leader's behavior: (1) how the leader actually behaved, (2) how he should have behaved, and (3) how important the behavior was to the member. Each item was scored from 1 to 7, with the higher score representing the more desireable behavior. An example of one item is shown in Figure 3-2. The complete Leadership Questionnaire, as modified for use in a follow-on Continental Army Command (CONARC) study, is attached as Appendix B.

The intent of the research design was to allow the determination of the gap between member expectations (how should the leader have behaved) and actual leader behavior (how did he behave?) as perceived by the member. Because of the "inherent bias" related to the perspective from which leader behavior is observed, the researchers chose to " . . . employ a 'tri-focal' view of leadership."[1] Leadership, at any given level, would be diagnosed

[1] Ibid., p. 6.

FIGURE 3-2

LEADER BEHAVIOR QUESTIONNAIRE ITEM

"HE WAS WILLING TO MAKE CHANGES IN WAYS OF DOING THINGS."

How often was he?		How often should he have been?		How important was this to you?	
Always	7	Always	7	Critical	7
Almost Always	6	Almost Always	6	Very Important	6
Frequently	5	Frequently	5	Important	5
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Seldom Important	3
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Never	1	Never	1	Unimportant	1

SOURCE: U. S., Dept. of the Army, Leadership for the 1970's, Annex B, p. B-5.

from three perspectives: (1) as seen by superiors, (2) as seen by subordinates, and (3) as seen by the leader himself. Thus, in the field survey, superiors reported on the behavior of a typical leader-subordinate, leaders described their own behavior, and subordinates described the behavior of their supervisors. In addition to the 43 leader behavior description items, the questionnaire was designed to gather (1) certain demographic data, (2) information concerning the relative importance of the Principles of Leadership, (3) attitudes regarding the Modern Volunteer Army, and (4) data measuring respondents' satisfaction with Army Leadership.[1]

[1]Ibid., pp. 6-9.

The USAWC field survey was conducted at 17 installations within the United States and involved subjects who were enrolled in Army schools or training programs. Each respondent was asked to describe the leader behavior of himself, his superior, or one immediate subordinate whom he knew well (preferably neither his best nor poorest), in his last duty assignment. A total of 1800 questionnaires were gathered, 600 for each of the three perspectives. In addition, research teams interviewed 450 individuals (equally distributed among the three perspectives) to provide " . . . qualitative, subjective information which added additional meaning to the quantitative data."[1]

Analysis of Data

The major emphasis in treatment of the data was on grade-level (military rank) analysis. Meaningful grade-level groups were developed (e.g., Junior NCO's comprised enlisted pay grades E4, E5, and E6 with less than 5 years service) and determinations were made of the deviations of actual from desired leader behavior for each grade-level group. In the study this deviation was termed "performance shortfall."[2] (Raw performance shortfall scores measured the degree to which the informal contract was being fulfilled). This analysis was performed for each of the 43 leader behavior items and t-tests were conducted to determine if the difference between a given grade-level group and all subjects was significant.

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[1]Ibid., p. 3. [2]Ibid., pp. 10-12.

The researchers also derived a variable which they labeled "perception shortfall" which " . . . is the sum of two components: (1) the difference between mean performance shortfall observed by superiors and the mean performance shortfalls of individuals describing their own behavior, and (2) the difference between mean performance shortfall observed by subordinates and the mean performance shortfalls of individuals describing their own behavior."[1] For each of the 43 leader behavior items research results were assembled on a "Summary Data Table" for detailed analysis. (A sample Summary Data Table is attached as Appendix C).[2]

Of various statistical treatments applied, perhaps the most important was a linear regression technique, using "satisfaction with overall leader performance" as the dependent variable, and observed behaviors as independent variables.[3] The linear regression treatment enabled the researchers to identify, for each grade level, those behavioral items that provided the greatest (or least) opportunity for improving overall perception of overall performance. Further, the data were analyzed to determine if there were significant differences in the degree of satisfaction with overall leader performance depending on race, or depending on whether the leader behavior occurred in a combat or noncombat situation.

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[1]Ibid., p. 12. [2]Ibid., pp. C-11 to C-22.

[3]Ibid., p. 12.

Findings and Applications

The major findings of the study are summarized in Figure 3-3.[1] Finding number 4 is not empirically supported, but is based on the rationalization that (1) the Principles of Leadership were being used as a basis for leadership instruction in Army schools, other services, and other nations, (2) questionnaire respondents were reluctant to classify any of the eleven principles as "least important," and (3) only two or three respondents (out of 1800) recommended any substantial change to the Principles in a free response question.[2] (Some of the problem "factors" associated with Finding 9 include "leaders' perception of the current system of Military Justice", "misuse of soldiers' time," etc.)[3]

The study produced a number of recommendations for applying the research findings. These are shown in Figure 3-4. Some of these ideas have been implemented. For example, in accordance with the first recommendation, the Continental Army Command, the organization responsible (at that time) for training and education in the U. S. Army, conducted a large scale seminar/data collection program, which is described below as the CONARC Leadership Study.

The CONARC Leadership Study

In 1971 CONARC initiated a program of seminars (1) to aid installation commanders in improving the quality of leadership in their organizations

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[1]Ibid., pp. vii-viii. [2]Ibid., p. 17. [3]Ibid., p. 26.

FIGURE 3-3

STATEMENT OF FINDINGS

1. THE STUDY METHODOLOGY IS A RELIABLE DEVICE FOR MEASURING LEADERSHIP EFFECTIVENESS AND DIAGNOSING PROBLEMS.

2. DEGREE OF SATISFACTION WITH THE OVERALL PERFORMANCE OF ARMY LEADERS VARIES SIGNIFICANTLY BY GRADE LEVEL (HIGHER GRADE, HIGHER SATISFACTION), VARIES ONLY SLIGHTLY BETWEEN COMBAT AND NONCOMBAT CONDITIONS, AND DOES NOT VARY BY RACIAL GROUP.

3. IN GENERAL, SOLDIERS ARE SATISFIED WITH LEADERSHIP IN BASIC TRAINING AND DISSATISFIED WITH LEADERSHIP IN ADVANCED INDIVIDUAL TRAINING. (SOLDIERS ARE DISAPPOINTED IF HIGH STANDARDS OF PERFORMANCE ARE NOT SET AND MAINTAINED.)

4. OUR LEADERSHIP PRINCIPLES (AND THE INSTITUTIONAL CONCEPT THEY EXPRESS) ARE VALID AND APPROPRIATE FOR THE 1970'S.

5. THE PERCEPTION OF THE RELATIVE IMPORTANCE OF SPECIFIC LEADERSHIP PRINCIPLES VARIES AMONG GRADE LEVELS.

6. THE APPLICATION OF LEADERSHIP PRINCIPLES IS DEFECTIVE IN SEVERAL RESPECTS WHICH HAVE BEEN IDENTIFIED BY GRADE LEVELS AND PERSPECTIVE (SUPERIOR, SUBORDINATE, SELF) IN TERMS OF SPECIFIC BEHAVIOR.

7. A MAJOR DIFFICULTY IN APPLYING CORRECTLY THE PRINCIPLES OF LEADERSHIP IS THE FREQUENT MISPERCEPTION OF HOW WELL ONE'S OWN LEADERSHIP IS MEETING THE LEADERSHIP EXPECTATIONS OF SUPERIOR AND/OR SUBORDINATE (INDIVIDUALS CONSISTENTLY PERCEIVE THEIR OWN SHORTFALLS AS LESS THAN SUPERIORS OR SUBORDINATES PERCEIVE THEM TO BE).

8. CERTAIN ITEMS OF LEADER BEHAVIOR FOR EACH GRADE LEVEL HAVE HIGH POTENTIAL FOR SIGNIFICANT IMPROVEMENTS IN OVERALL LEADERSHIP EFFECTIVENESS IN RETURN FOR A SMALL IMPROVEMENT IN THE PARTICULAR BEHAVIOR.

9. SEVERAL FACTORS WERE FOUND TO BE COMPOUNDING THE PROBLEM OF APPLYING CORRECTLY THE PRINCIPLES OF LEADERSHIP.

10. THE OVERALL ATTITUDE TOWARD THE MODERN VOLUNTEER ARMY CONCEPT WAS MODERATELY FAVORABLE ALTHOUGH THERE WERE WIDE VARIATIONS WITHIN AND BETWEEN GRADE LEVELS.

SOURCE: U. S., Dept. of the Army, Leadership for the 1970's, pp. vii-viii.

FIGURE 3-4

USAWC RECOMMENDATIONS

1. USE THE MAIN FEATURES OF THIS STUDY ON AN ARMY-WIDE SCALE TO PROVIDE:

   A. THE INDIVIDUAL AND ORGANIZATIONAL BENEFITS ACCRUING FROM PARTICIPATORY RESEARCH.

   B. DIAGNOSTIC INFORMATION APPLICABLE TO INDIVIDUAL AND ORGANIZATIONAL LEADERSHIP IMPROVEMENT.

   C. A BROADENED DATA BANK OF INFORMATION TO BE USED BY ARMY PLANNERS, EDUCATORS, AND RESEARCHERS.

2. MAKE WIDE DISTRIBUTION OF SELECTED PORTIONS OF THIS STUDY AS A MEANS OF PROVIDING, BY LEVEL, DIAGNOSES OF LEADERSHIP PROBLEMS AND PRESCRIPTIONS FOR LEADERSHIP IMPROVEMENT.

3. CONDUCT SCIENTIFIC STUDY OF THE ATTITUDES, VALUES, AND CONCEPTS OF LEADERSHIP HELD BY OFFICERS AT 06 (COLONEL) AND HIGHER GRADES.

4. REVISE LEADERSHIP INSTRUCTION CONCEPTS WITHIN THE ARMY SCHOOL SYSTEM TO ENSURE THAT CONTEMPORARY SCIENTIFIC APPROACHES TO THIS SUBJECT ARE BEING EXPLOITED.

5. ESTABLISH AN EXTENSIVE AND PROGRESSIVE PROGRAM OF ACADEMIC AND TECHNICAL EDUCATION FOR CAREER NCO'S.

6. BEGIN DEVELOPMENT OF A PROGRAM OF "COACHING" DESIGNED TO ENHANCE COMMUNICATION AND UNDERSTANDING OF SPECIFIC EXPECTATIONS BETWEEN SUPERIOR AND SUBORDINATE.

7. PROVIDE STAFF MEMBERS (MILITARY) WHO ARE FORMALLY TRAINED IN THE SCIENTIFIC STUDY OF LEADERSHIP AND INTERPERSONAL RELATIONS TO ALL ARMY SCHOOLS AND STAFF SECTIONS DEALING WITH THEORETICAL OR PRACTICAL LEADERSHIP EDUCATION OR TRAINING.

8. PRECLUDE EVOLUTION OF AN "ANTI-LEADERSHIP" SYNDROME BY ENSURING QUALITY CONTROL OF LEADERSHIP STUDY ACTIVITIES THROUGH CENTRALIZED COORDINATION OF FIELD SURVEY OPERATIONS.

SOURCE: U. S., Dept. of the Army, Leadership for the 1970's, pp. 31-38.

and (2) to accumulate the extensive leadership data bank that had been recommended by the USAWC study. Accordingly, eight three-man teams (each team including at least one officer with graduate-level training in a behavioral science) were dispatched to 63 installations in the U. S. and overseas to conduct the seminars and collect additional data. All installations having a population of 5000 or more were included in the program, with the exception of those in Vietnam, which were omitted. A slightly modified version of the USAWC Leadership Questionnaire was used in the CONARC study (Appendix B).[1]

The CONARC teams assisted local commanders in analyzing the data and developing a "profile of the leadership environment in the command."[2] Over 30,000 respondents completed the questionnaires. Information from the data bank was made available to planners, educators, and researchers to enhance the study and application of leadership in the Army.

The Army is still analyzing the data and communicating results to the field in the form of leadership monographs. Thus far, monographs have been published reporting (1) demographic characteristics of Army leaders; (2) satisfaction with U. S. Army leadership; (3) leadership of junior NCO's, senior NCO's, and company grade officers; and (4) conceptual

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[1]U. S., Department of the Army, Leadership for Professionals, (Ft. Bragg, N. C.: CONARC Leadership Board, July 30, 1971), pp. 12-21.

[2]Ibid., p. 16.

models developed by Army scholars as an outgrowth of the Army leadership studies.[1]

Evaluation

The Army Leadership studies represent an imaginative application of leadership theory to real life problems. The studies are among the few large scale research efforts to examine, simultaneously, perceptions of leader behavior from the perspectives of superior, the leader himself, and the subordinate, in the search for long run leader effectiveness. The Army has operationalized the concept of the informal contract in a meaningful way. The data bank that has been accumulated on leader behavior is a priceless source of data that is being used to develop hypotheses, examine relationships, and test theories. Information derived from the data is being fed back to the field for local interpretation and application. Nevertheless, there are limitations to the studies which will be discussed below under the headings "methodology" and "theory."

Methodology

The major methodological weakness of the studies stems from the fact that the method of scale construction is undocumented. The studies

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[1]U. S., Department of the Army, Consolidated Army War College Leadership Monograph Series 1-5 (Fort Harrison, Ind.: U. S. Army Administration Center, 1975); U. S., Department of the Army, Monograph #6, Field Grade Officer Leadership (Carlisle Barracks, Pa.: U. S. Army War College, August 1974); U. S., Dept. of the Army, Monograph #7; and U. S., Department of the Army, Monograph #8, A Matrix of Organizational Leadership Dimensions (Fort Benjamin Harrison, Ind.: U. S. Army Administration Center, October 1976).

assert that the scales were derived from the Ohio State Consideration and Initiating Structure scales. But, as will be shown in Chapter IV, less than half of the items in the Army instrument can be directly associated with the Ohio State work. Since the Army has not provided data relative to the validity and reliability of their leadership scale, the user of the scale has no assurance that he is measuring what he wants to measure, nor that the scales will provide consistent results.

Second, the data gathered in the two studies do not appear to be representative of the universe of Army leaders. In the USAWC study, questionnaires were given to trainees at various Army schools and training centers. In the CONARC study only installations of over 5000 were included and personnel in Vietnam were purposely omitted. There is no evidence in the documentation of the research that subjects were chosen randomly at the selected installations.

Theory

With respect to theory, several weaknesses appear important. First, except for the single variable "Satisfaction with Overall Performance," criteria for relating leader behavior to organizational effectiveness are lacking. With respect to that single variable, one might ask, as do Campbell and his colleagues, " . . . whether there is enough variance in individual satisfaction that is attributable to organizational characteristics to make it worthwhile to aggregate individual satisfaction and call the

composite a measure of organizational functioning."[1] The literature abounds with empirical evidence that highly satisfied workers are not necessarily the most productive workers. Filley and House point out that "at the present time there seems to be general agreement among most researchers that the effect of satisfaction on worker motivation and productivity depends on situation variables yet to be explicated by future research."[2] It would appear dangerous, then, to make major changes in leadership doctrine and training programs, based on the leadership studies and oriented toward improving members' satisfaction with leadership, without careful consideration of the possible effects on organizational performance.

Second, although the researchers derived their instrument from the Ohio State literature, they have neglected to analyze the data in terms of the theoretically important leader behavior dimensions of Consideration and Initiating Structure. The study does not even identify the questionnaire items as being components of either the Consideration dimension or the Initiating Structure dimension. Leader behavior is analyzed on an item by item basis, and consequently much potential theoretical meaning of the research is lost.

Third, the studies assume that leaders who are high on both dimensions are the most effective, since they meet the needs of both superiors (who want the leader to be high on Initiating Structure) and subordinates

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[1]John P. Campbell et al., The Measurement of Organizational Effectiveness: A Review of Relevant Research and Opinion (San Diego, Calif.: Naval Personnel Research and Development Center, 1974), p. 76.

[2]Filley and House, pp. 378-79.

(who want the leader to be high on Consideration). This oversimplification is not consistent with the prolific literature on the two principal Ohio State dimensions of leadership. In a recent review, for example, Kerr and associates stated:

> Finally, it should be pointed out that researchers have discovered a number of exceptions to the rule that a high-high leadership style is the most effective one. Preferences for and attitudes toward Consideration and Structure have been found to vary considerably as a function of both the individual and the situation (Hunt and Liebscher, 1973). For these reasons it seems an oversimplification to claim that the effective leader needs "merely" to behave in a highly considerate and structuring manner.[1]

Fourth, the studies pay only lip service to the situational influences. Repeating here an earlier citation, the War College study states "The successful Army leader, then, as 'go-between,' must balance between the needs of the individual (Consideration) and the needs of the organization (Initiation), tipping the scales in one direction or the other, according to the situation, in such a manner that, in the long run, both parties view their total payoff as 'fair'."[2] The study does not attempt to identify factors in the situation that have potential relevance to satisfactory or effective leader behavior. Figure 2-31 (Chapter II) lists numerous situational factors which have been found to influence leader behavior, as identified separately by Kerr et al.,

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[1]Steven Kerr, et al., "Toward a Contingency Theory", p. 63.

[2]U. S., Dept. of the Army, Leadership for the 1970's, p. 3.

Michaelsen, and Barrow.[1] The Army studies examine only hierarchical level (by segregating the sample by grade-level groups), race, and, in the USAWC study only, combat versus noncombat. The latter analysis (combat versus noncombat) is undocumented, except for a statement that "degree of satisfaction with the overall performance of Army leaders . . . varies only slightly between combat and noncombat conditions. . . ."[2] In effect, by neglecting to consider the multitude of situational variables that potentially moderate leader behavior, the researchers implicitly assume that the Army is one large, homogeneous organization in which a one-best leadership style can be determined for each grade-level group. This implies, for instance, that an infantry platoon leader can one day be transferred to a predominantly civilian-staffed supply and maintenance depot and be expected to operate effectively without any adjustment to his style of leadership. Based on the literature review of Chapter II, research described earlier in this Chapter and the personal experiences of the writer, the one-best style assumption appears to be erroneous. There is a serious need for further research to explore the Army's leadership data for the existence of contingency variables which may influence leader behavior in the Army.

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[1]Kerr et al., "Toward A Contingency Theory," pp. 65-71; Michaelsen, "Situational Conditions," pp. 18-27; and Barrow, "Leadership Effectiveness," pp. 10-11.

[2]U. S., Dept. of the Army, Leadership for the 1970's, p. 14.

Opportunity for Further Research

The CONARC leadership study provided an excellent opportunity for further research through secondary analysis of the data. It was suggested in Chapter II that contemporary overemphasis on micro-oriented leadership theories and research is attributable, at least in part, to the difficulties and costs involved in accessing large organizations for conducting much neglected macro-level studies. Also in Chapter II, contingency notions were promoted as promising approaches for explanation of inconsistencies and contradictions in earlier leadership research. The CONARC study was of such broad scope, encompassing as it did almost the entire spectrum of functional activities of the Army and involving responses from over 30,000 members of all levels of the organization, that it afforded the researcher a rare opportunity to explore for the existence of contingency relationships.

The Best-Fit Thesis

Particularly intriguing was the opportunity for examining the data
determine if the best-fit theses of Kast and Rosenzweig and Lorsch and
se are valid. Although the notions of these investigators are of
tionable comparability, there does appear to be convergence on the
hat the most effective style of leadership depends upon certain
eristics of the organization's internal environment, which are, in
termined by the external environment. In other words, the external
nt dictates the type of organization required for optimal

effectiveness, and a certain leadership style is appropriate, given the required organizational type. Figure 3-5 demonstrates the comparability of the concepts of the external environment of organizations of Kast and Rosenzweig and Lorsch and Morse.[1]

FIGURE 3-5

COMPARABLE CONCEPTS OF ENVIRONMENT

Investigators	Environmental Classifications		
Kast and Rosenzweig	Placid	----------	Turbulent
Lorsch and Morse	High External Certainty	----------	Low External Certainty

Although there is conflict among these investigators as to what the best-fit actually is, the common thread of agreement is that different external environments impose different demands on organizations. Consequently, for optimal effectiveness organizational characteristics must vary depending on whether the external environment is placid with high certainty or turbulent with low certainty. Kast and Rosenzweig, for example, suggest that a placid external environment demands a "closed/stable/mechanistic" type of organization, whereas a turbulent external environment demands an "open/adaptive/organic" organizational type.[2]

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[1]Kast and Rosenzweig, Contingency Views, pp. 313-20; and Lorsch and Morse, pp. 127-35.

[2]Kast and Rosenzweig, Contingency Views, p. 315.

Both the Kast and Rosenzweig and Lorsch and Morse theories suggest that different styles of leadership are appropriate, depending upon the type of organization demanded by the external environment. Drawing on Fiedler's Contingency Model, Lorsch and Morse suggest, for example, that where the external environment is either "certain and programmable" or "uncertain and complex," a task oriented (low LPC) leadership style is appropriate.[1] However, for intermediate conditions of the external environment, they suggest that a relationship oriented (high LPC) style may be best.[2] These various contingency ideas seem inconsistent with Army doctrine and policy.

The Army's Problem

If the best-fit theses are valid, then the Army has a problem. This is because three somewhat unique attributes of Army life interact to reduce the prospects for attainment of a proper fit between leadership style, organizational types, and environmental characteristics. These three attributes are (1) Army leadership doctrine, (2) the diversity of activities performed by the Army, and (3) the policy of frequent rotation of leaders and members.

Army Leadership Doctrine

Army leadership doctrine has been dominated by the consideration that the organization's fundamental purpose is to prepare for and manage

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[1]Lorsch and Morse, p. 131. [2]Ibid.

war and combat.[1] The use of violence through combat operations as a means for achieving objectives is a unique and important difference between military and civilian organizations.[2] As a result the Army has traditionally relied upon and valued strong, decisive leadership.[3] While such authoritarian leadership apparently proved appropriate in combat zones in World War II, the American Soldier studies found gross dissatisfaction with Army leaders among troops in rear echelons and inactive theatres.[4] Perhaps because of the Stouffer studies, and contemporaneous with the human relations groundswell on the industrial scene, the Army began to emphasize that "the responsibilities of the military leader are twofold: " . . . accomplishment of the mission . . . and . . . duty to his subordinates."[5]

These ideas of relatively equal emphasis on the mission and the troops parallelled, and perhaps built on, similar ideas evolving in the leadership literature, in which the most appropriate leadership style was

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[1]Janowitz, The Professional Soldier, p. 423.

[2]Kurt Lang, "Military Organizations," in Handbook of Organizations, ed. James G. March (Chicago: Rand McNally & Co., 1965), p. 838; Morris Janowitz, The Professional Soldier, p. 423; and Samuel A. Stouffer et al., The American Soldier, Vol. 2: Combat and Its Aftermath (Princeton, N. J.: Princeton University Press, 1949), p. 59.

[3]Stouffer et al., Combat and Its Aftermath, pp. 97-104, 112-18; Lawrence P. Crocker, ed., The Officer's Guide, 37th ed. (Harrisonburg, Pa.: Stackpole Books, 1973), p. 12; and Howze, p. 3.

[4]Stouffer et al., Adjustment During Army Life, pp. 362-82.

[5]John H. Carter, "Military Leadership," Military Review (April 1952), pp. 14-18.

seen as combining highly instrumental (emphasis on mission) and highly supportive (emphasis on troops) behaviors.[1] Such ideas were reiterated in the USAWC Leadership Study in terms of the Ohio State dimensions.[2] This evolving doctrine appears to be reinforced in the statement of Finding Number 4 of that study which " . . . established the validity and acceptability of the Army's time-honored Principles of Leadership."[3]

Nevertheless, there is evidence to suggest that the Army continues to value the strong, decisive, mission-oriented leader. In his early article introducing the principles of leadership, Carter emphasized:

> The primary duty of the military leader is the accomplishment of his assigned mission. Everything else, even the welfare of his men, is subordinate.[4]

Also, although the USAWC study on Leadership for the 1970's advocated an equal emphasis on Initiation of Structure and Consideration behaviors, the same study stressed, in the preface, that "the ultimate purpose of the Army--success in combat--remained the overriding consideration throughout the study."[5] The implication is that the Army continues to value instrumental leader behaviors higher than supportive behaviors; perhaps appropriately so for a combat situation. Be this as it may, a major part of the Army's problem is that it seems to persist in a search for a

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[1]Filley and House, pp. 414-15.

[2]U. S., Dept. of the Army, Leadership for the 1970's, p. 3.

[3]Ibid., p. 17. [4]Carter, p. 14

[5]U. S., Dept. of the Army, Leadership for the 1970's, p. ii.

generalized leadership doctrine applicable in all situations. It does so in spite of rapidly accumulating evidence concerning the possible existence of powerful environmental contingency variables that require different leadership styles for different situations.

Diversity of Activities

The Army's generalized leadership doctrine would cause no problems of leader effectiveness were it not for the diversity of activities in which the Army is involved. The Army's mission embraces a much broader domain of activity than merely the conduct of combat operations. The Army is responsibile for planning, organizing, training and equipping " . . . the land forces of the United States for the conduct of prompt and sustained combat operations. . . ."[1] Designed as a self-sustaining organization capable of operating over vast geographic areas, the Army, functionally at least, tends to mirror the civilian sector of our society. The entire spectrum of economic functions must be performed; development, acquisition, distribution, maintenance, management, and utilization of resources.[2] The Army is, in effect, a microcosm of the society it serves, and is involved in a wide range of activities to an extent equaled by few, if any, civilian organizations. The entire continuum of organizational

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[1]Charles H. Coates and Roland J. Pellegrin, Military Sociology: A Study of American Military Institutions and Military Life (University Park, Md.: Social Science Press, 1965), p. 117.

[2]Bengt Abrahamsson, Military Professionalization and Political Power (Beverly Hills, Calif.: Sage Publications, 1972), p. 36.

types, from mechanistic to organic, may very well be represented by the variety of units performing combat, administrative, logistics, education and training, and research functions in the Army organizational system.

The implication of this is that there may not be a single most appropriate model of leadership applicable to the Army. If the best-fit theses described above are accepted at face value, the idealized strong, decisive leader, high on both supportive and instrumental behaviors, may prove to be ineffective in some subenvironments of the Army. The danger of a misfit is especially acute in view of the Army's traditional rotation policy.

Frequent Rotation of Leaders and Followers

Frequent rotation of leaders and followers has been institutionalized by the Army to facilitate flexibility in assignment of cadre during rapid mobilization, to develop top level commanders and staff who have system-wide perspectives, and to assure equitable distribution of desireable and undesireable assignments.

While frequent rotation of managers under managerial developmental programs is a common phenomenon in industry and commerce, the frequency of transfer is not nearly as great, nor is the practice as thoroughly institutionalized, as in military organizations. A comparative study by Grusky supports this notion. Grusky states:

> Military systems are of theoretical significance to organizational theory because all those of executive rank are, of necessity, itinerants. Thus military systems are desireable objects of investigation for the student of succession because they represent a

> relatively extreme career situation. Military rotation policies require officers to change their assignments after a given period of time. This period may be one year in hardship areas, but more typically two, three, four, and at times five years. Hence executive succession is highly routinized and frequent.[1]

Further, in the purely military organization, both managers (officers) and working level operators (enlisted men) are rotated periodically, which creates unique leadership situations and compounds the leadership problem in the military environment.

Mock, writing about the Army's career development program, discussed the rotation policy and pointed out the dilemma of the ideal career assignment pattern.[2] The dilemma of which he writes is the need for " . . . highly competent commanders with broad experience to manage the larger and more complicated institutions," and the demand for " . . . expertise in a wide range of extremely specialized areas."[3] According to Mock, "the officer is advised to avoid repetitive similar assignments, and, instead, seek a variety of assignments which includes at least one command at each rank."[4] But frequent rotation through a variety of assignments prevents the officer from attaining high skill levels in any single area.

Although pressure for rotation of enlisted personnel through a broad pattern of assignments is less insistent, frequent rotation of both superiors and subordinates creates unique problems for military

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[1]Oscar Grusky, "The Effects of Succession: A Comparative Study of Military and Business Organization," in The New Military, ed. Morris Janowitz (New York: Norton Library, 1969), pp. 83-111.

[2]Phillip W. Mock, "Delusion of Grandeur," Military Review (October 1972), pp. 50-65.

[3]Ibid., p. 51. [4]Ibid., p. 50.

organizations. For one thing, it means that the average time that a subordinate works for a single supervisor is diminished significantly, since the probability of both being assigned to a given unit at precisely the same time is quite low. Second, it increases the probability that both parties will bring to the relationship divergent expectations of appropriate leader behavior, resulting from dissimilar experiences in the extremely broad range of organizational subcultures which characterize the vast, technologically diffuse military establishments of our time. The problem of frequent rotation of military leaders and followers becomes even more complex when we observe that the modern military organization, both at home and abroad, is comprised of varying mixes of civilian and military personnel.

Combat forces are staffed predominently with military personnel, but logistics, education and training, administrative, and research organizations (particularly in the Continental United States) are often predominently civilian. Frequently, in the civilian dominated Army organizations, military leaders are paired with civilian deputies or assistants. In those situations the civilians tend to have relatively high job stability and, consequently, high job expertise.[1]

The forceful, decisive military leader, despite his advantages of broad experience and systems perspective, may find the Army's generalized strong, decisive leadership style to be inappropriate in such situations.

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[1]Kurt Lang, "Technology and Career Management in the Military Establishment," in The New Military, p. 51; and Coates and Pellegrin, pp. 117 and 135-38.

A more subtle, participative style would provide, perhaps, the best-fit under such circumstances, where the leader may need to lean heavily on his subordinate's job knowledge.

But if the notions of Fiedler and Lorsch and Morse, regarding style flexibility are correct, the officer may not be able to adapt to non-combat organizations.[1] As he rotates from assignment to assignment across the diverse functional subsystems of the Army, the officer who adheres to the ideal strong, decisive leadership style may very well be contributing substantially to the ineffectiveness of his organization. From the best-fit theses of Kast and Rosenzweig, Lorsch and Morse, and Fiedler, one would expect that a leadership style that proved effective in a closed/stable/mechanistic type of organization might not be as effective in an open/adaptive/organic one.

The Research Questions

In order to ascertain whether or not the Army has a hidden leadership problem, it is necessary to investigate the moderating influence of organizational type (mechanistic versus organic) on the relationship between leadership style and leader effectiveness. The questions that need to be answered are two in number:

1. Does the Army, in fact, embrace a <u>range</u> of organizational types, or is it a relatively homogeneous organization that can afford to emphasize a generalized leadership style?

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[1]Fiedler and Chemers, p. 141; and Lorsch and Morse, p. 133.

If the concept of organizational type has no relevance for the Army, further investigation will not be necessary, and the Army can continue to seek merely refinements of its present leadership doctrine. However, if the first question is answered affirmatively, then the research must be extended to answer a second question suggested by the best-fit theses:

2. Given that the Army does embrace a range of organizational types, does organizational type have a moderating influence on the relationship between leadership style (behavior) and leader effectiveness?

The second question asks, for example, will a leadership style that is effective in a mechanistic type organization be just as effective in an organic type organization?

The writer is convinced that the data from the CONARC Leadership Study of 1971, coupled with more recent survey data, can provide evidence bearing on the research question. The methods for accomplishing this will be discussed in Chapter IV.

Summary

This chapter explained the importance of military leadership in American society and described the substantial leadership research contribution of the military establishment. An account of the monumental Army leadership studies of 1971 was provided. The studies were criticized with respect to methodology, but principally for the failure of the

researchers to take advantage of the opportunity to examine the data for evidence of contingency relationships that have been suggested by the leadership literature in recent years.

The best-fit theories of Kast and Rosenzweig, Lorsch and Morse, and Fiedler were cited as having particular relevance. It was pointed out that if the best-fit theories were valid, the Army has, perhaps, a concealed leadership problem. This problem is due to (1) the Army's adherence to a one-best-style doctrine, (2) the diversity of activities in which it engages, and (3) the policy of frequent rotation of leaders and followers. To determine whether this problem is real or illusory, two research questions were posed. The first question was oriented toward learning whether or not the Army consists of more than one organizational type; the second toward learning whether there is some best-fit between organizational type and leadership style that differentiates between effective and ineffective leaders.

Chapter IV provides a detailed description of the methodology selected to answer the research questions.

CHAPTER IV

METHODOLOGY

This chapter describes the methodology of the study. Included, sequentially, are major-sections dealing with (1) the general approach, (2) the research focus, (3) the research design, (4) categorization of data by organizational type, (5) operational definitions, (6) the research hypothesis, (7) data analysis, and (8) research constraints. The methodology is summarized in a concluding section.

General Approach

The research is designed to answer two research questions:

1. Does the Army consist of different types of organizations?

2. If so, does organizational type have a moderating influence on the relationship between leadership style and organizational effectiveness?

The organizational typology used in this study is based primarily on the Kast and Rosenzweig "organizational systems."[1] Those scholars see organizations as possessing systemic characteristics ranging on a continuum from closed/stable/mechanistic at one extreme to open/adaptive/organic on the other, as described in Chapter III. Their concept is expanded in this

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[1]Kast and Rosenzweig, Contingency Views, p. 314.

study to provide for three possible types of organizations (organizational types): mechanistic, intermediate, and organic.

The provision for three types of organization reduces the danger of oversimplification and is more in line with the more complex typologies suggested by Newman and Perrow. Newman, for instance, suggests that "coherent management designs" can be developed by thinking about organizations in terms of "management structures," that differ according to the nature of technology.[1] The three types of technology which differentiate management structures are "stable" (similar to the Kast and Rosenzweig closed/stable/mechanistic organizational system), "regulated flexibility," and "adaptive" (similar to the open/adaptive/organic organizational type).[2]

Perrow, too, emphasizes the importance of technology as a basis for a taxonomy of organization types in comparative analysis.[3] Rejecting a "simple polar contrast" between bureaucractic and nonbureaucratic organizations, he suggests four types of organizations--routine, craft, nonroutine, and engineering.[4]

The addition of an intermediate category to the Kast and Rosenzweig organizational typology in this research is a unique contribution which recognizes the probable existence of hybrid types of organizations. The approach also accentuates the influence of the purer mechanistic and organic types at the extremes of the Kast and Rosenzweig continuum of organizational systems.

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[1]William H. Newman, "Strategy and Management Structure," in Kast and Rosenzweig, Contingency Views, pp. 287-303.

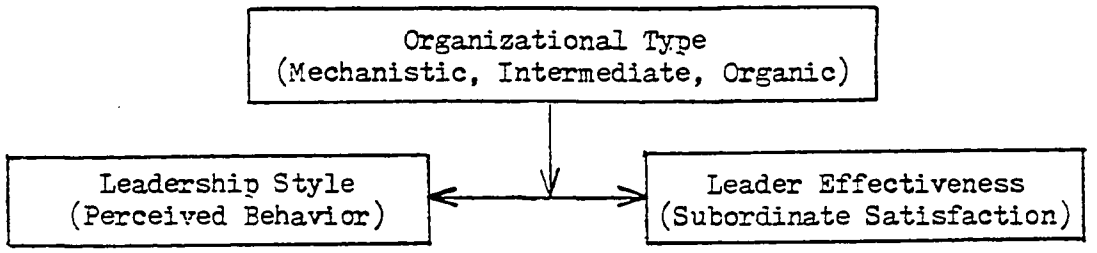
[2]Ibid., pp. 293-94. [3]Perrow, pp. 75-85. [4]Ibid.

The Conceptual Model

The conceptual model that will be tested is shown in Figure 4-1. The model portrays the notion that leadership style, as moderated by the construct "organizational type" (mechanistic, intermediate or organic),

FIGURE 4-1

CONCEPTUAL MODEL



results in some level of leader (organizational) effectiveness. Leadership style is operationalized in this study as behaviors of the leader as perceived by his or her subordinates. Leader (or organizational) effectiveness is operationalized here as subordinate satisfaction with leader performance. The relationship between leadership style and leader effectiveness is shown as two-way relationship based on the research literature.[1] Organizational type is conceptualized in Figure 4-1 as a contingency variable having a powerful influence on the leadership style/effectiveness

[1]Aaron Lowin and James R. Craig, "The Influence of Level of Performance on Managerial Type: An Experimental Object-Lesson in the Ambiguity of Correlational Data," Organizational Behavior and Human Performance 3 (1968): 440-58.

relationship. The method for operationalizing the organizational type construct will be described in detail below.

The Nature of the Research

This research is an exploratory, ex post facto field study. It is exploratory because its purpose is " . . . to discover significant variables in the field situation, to discover relationships among variables, and to lay groundwork for later, more systematic and rigorous testing of hypotheses."[1]

Although exploratory research usually omits hypotheses, it seems reasonable and appropriate to formulate hypotheses here by generalizing from the evolving contingency theory and the related intra-firm and inter-industry research reviewed in Chapter II. Hence, substantive hypotheses will be used to focus the research effort.

The research is an ex post facto study. Kerlinger defines ex post facto research as follows:

> Ex post facto research is systematic empirical inquiry in which the scientist does not have direct control of independent variables because their manifestations have already occurred or because they are inherently not manipulable. Inferences about relations among variables are made, without direct intervention, from concomitant variation of independent and dependent variables.[2]

This research examines the Army's leadership data bank, which consists of variables that were operationally defined by the Army for its own purposes. Thus, the study has the consequent advantages and disadvantages

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[1]Kerlinger, p. 406. [2]Ibid., p. 379.

of ex post facto research identified by Kerlinger. The advantages are that ex post facto research (1) permits investigation of problems not amenable to experimental inquiry and (2) is useful in defining problems and providing insights for further research. The disadvantages are that (1) one cannot manipulate independent variables, (2) the power to randomize is lost, and (3) there is great risk of improper interpretation.[1] The third disadvantage, which results from the first two, requires that the findings be treated with circumspection. This is of particular concern in this study, since neither the techniques used to measure the variables nor the data collection methodology could be changed by the researcher.

Since the data were collected by the Army in the field, the research is, in essence, a field study, defined by Kerlinger as:

> Field studies are ex post facto scientific inquiries aimed at discovering the relations and interactions among sociological, psychological, and educational variables in real social structures. . . . any scientific studies, large or small, that systematically pursue relations and test hypotheses, that are ex post facto, and are done in life situations like communities, schools, factories, organizations, and institutions will be considered field studies.[2]

Consequently, the general approach used here has the strengths and weaknesses of the field study as identified by Kerlinger and summarized in Figure 4-2, below.

The practical problems of cost, sampling, and time are irrelevant to this study because the necessary information is already available in the Army's data bank. The feasibility of using the existing data to answer the research questions will be demonstrated below.

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[1]Ibid., pp. 378-94. [2]Ibid., p. 405.

FIGURE 4-2

STRENGTHS AND WEAKNESSES OF FIELD STUDIES

Strengths	Weaknesses
1. Realism	1. Disadvantages of ex post facto research stated above
2. Practical social significance	2. Lack of precision in measurement of variables
3. Strength of variables (variables usually have great variance)	3. Practical problems a. Feasibility b. Cost c. Sampling d. Time
4. Permit testing of theory	
5. Heuristic (serve to discover or reveal relationships)	

SOURCE: Kerlinger, pp. 405-08.

Research Focus

In order to narrow the scope of the research, while still answering the research questions, the research focus is on leadership (1) in the U. S. Army, (2) of military middle managers, and (3) from the perspective of officer subordinates.

The U. S. Army

The U. S. Army is the subject of the research because of (1) the researcher's background and experience in the Army, (2) the availability of "the largest data base on Army Leadership ever assembled," and the need for further research on that data, and (3) the Army's interest in

further analysis of their accumulated data base and their encouragement of participation by "selected civilian organizations and universities."[1]

Military Middle Managers

Military middle managers are defined here as officers in the rank of Major, Lieutenant Colonel, and Colonel, comprising the "field grade" category of officers. This definition is consistent with the Grusky study in which these three grades were compared with middle management in industry.[2] Under this research design, officer-subordinate evaluations of the leader behavior of field grade superiors focus on a comparatively homogeneous group. The Army field grade officer group is relatively homogeneous with respect to hierarchical level, career committment, age, educational level, and need fulfillment, factors that have been shown to influence leader behavior.[3] This approach, focusing research on a homogeneous group, is consistent with the methodology of Stinson and Johnson in their effort to reduce possible contaminating influences in a recent test of the Path-

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[1]U. S., Dept. of the Army, Leadership for the 1970's, p. 32.

[2]Grusky, p. 87.

[3]See, for example, Katz and Kahn, pp. 301-31; V. Blankenship and R. E. Miles, "Organizational Structure and Managerial Decision Behavior," Administrative Science Quarterly 13 (1968): 106-20; Floyd C. Mann, pp. 86-90; Kerr et al., "Toward A Contingency Theory," pp. 67-68; Jordan and Taylor, p. 592; Paul V. Johnson and Robert H. Marcum, "Perceived Deficiencies in Individual Need Fulfillment of Career Army Officers," Journal of Applied Psychology 52 (1968): 457-61; and Michaelsen, "Effects of Situational Conditions," pp. 81-97.

Goal Theory.[1] Kerlinger describes this method--choosing subjects who are " . . . as homogeneous as possible . . ."--as a way of controlling for potentially influential extraneous variables.[2]

Subordinate's Perspective

Ideally, the study would examine leader behavior from the perspectives of the superior, the subordinate, and the leader himself (the tri-focal view described in the Army Leadership Study), as well as from the perspective of the leader's peers. However, the Army's data do not really provide the ideal tri-focal view. Approximately one-third of the respondents described their subordinates' behaviors, one-third described their own behaviors, and one-third described their superiors' behaviors. The three groups of respondents were not describing, necessarily, the same population of leaders.[3] For this reason, this research focuses on a single perspective, that of the subordinate. The leader behavior of field grade officers is examined from the viewpoint of officers who serve under them. There are two principle reasons for orienting the research toward the subordinate's perspective.

First, the overriding purpose of the Army Leadership Studies is to determine the type of leadership that would be most appropriate in the Modern Volunteer Army, under zero-draft conditions. In contrast to the

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[1]John E. Stinson and Thomas W. Johnson, "The Path-Goal Theory of Leadership: A Partial Test and Suggested Refinement," Academy of Management Journal 18 (June 1975): 242-52.

[2]Kerlinger, pp. 309-310.

[3]U. S., Dept. of the Army, Monograph Series 1-5, p. vii.

traditional military approach to leadership, where the focus was on the needs of the organization, the new approach examines the needs of individual members, as well.[1] A major concern of the Army is to find out how to increase the attractiveness of the Army as a place to work and a place to live. Implicit here is the notion that the Army values personal job satisfaction as an end in itself. There is a growing body of literature suggesting that fundamental value changes in society are creating a generation gap in which our young people are becoming less receptive to traditional leadership styles.[2] Consistent with this notion, the Army's findings show superiors to be generally more satisfied with the leader's overall performance than are subordinates.[3] By focusing on the perspective of officer-subordinates of military middle managers, operating in different functional areas of the Army, the research may provide insights concerning problems of immediate importance to the Army.

The second reason for emphasizing the officer-subordinate viewpoint is that it was estimated that the data bank contained significantly more officer-subordinate observations (approximately 3104) of field grade officer behavior than it did superior observations (665), or self observations (1,993).[4] In this regard Korman and Tanofsky have recently pointed out the special vulnerability of contingency research designs to certain

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[1]Ibid.

[2]Chris Argyris, pp. 158-59; William G. Scott, "Organization Theory: A Reassessment," Academy of Management Journal 17 (June 1974): 242-54; and Bowers and Bachman, pp. 1-11.

[3]U. S., Dept. of the Army, Monograph Series 1-5, pp. 2-4 to 2-7.

[4]Ibid., pp. 1-4.

statistical problems. They suggest that these problems can be diminished in scope by the use of "large employee samples" which minimize the " . . . likelihood of chance findings."[1]

The Research Design

Figure 4-3 summarizes the general research design, or the " . . . plan, structure, and strategy . . . of this investigation."[2] To answer the first research question concerning whether or not the Army consists of different types of organizations, 60 questionnaires were distributed to selected officers at the U. S. Army Administration Center to ascertain their perceptions of how five Army functions and nineteen Army branches should be classified with respect to an organizational type continuum.

Based on the results of the Army Administration Center survey, data (self-reports of subordinates of field grade officers) from the Army Leadership Study were grouped by organizational type (mechanistic, intermediate, or organic) and examined to determine if there were significant differential relationships between leader behavior and leader effectiveness.

The Army's tradition of assigning officers to specialized branches for the purpose of maintaining expertise in various functional areas afforded an opportunity to categorize the data in two ways: (1) based on

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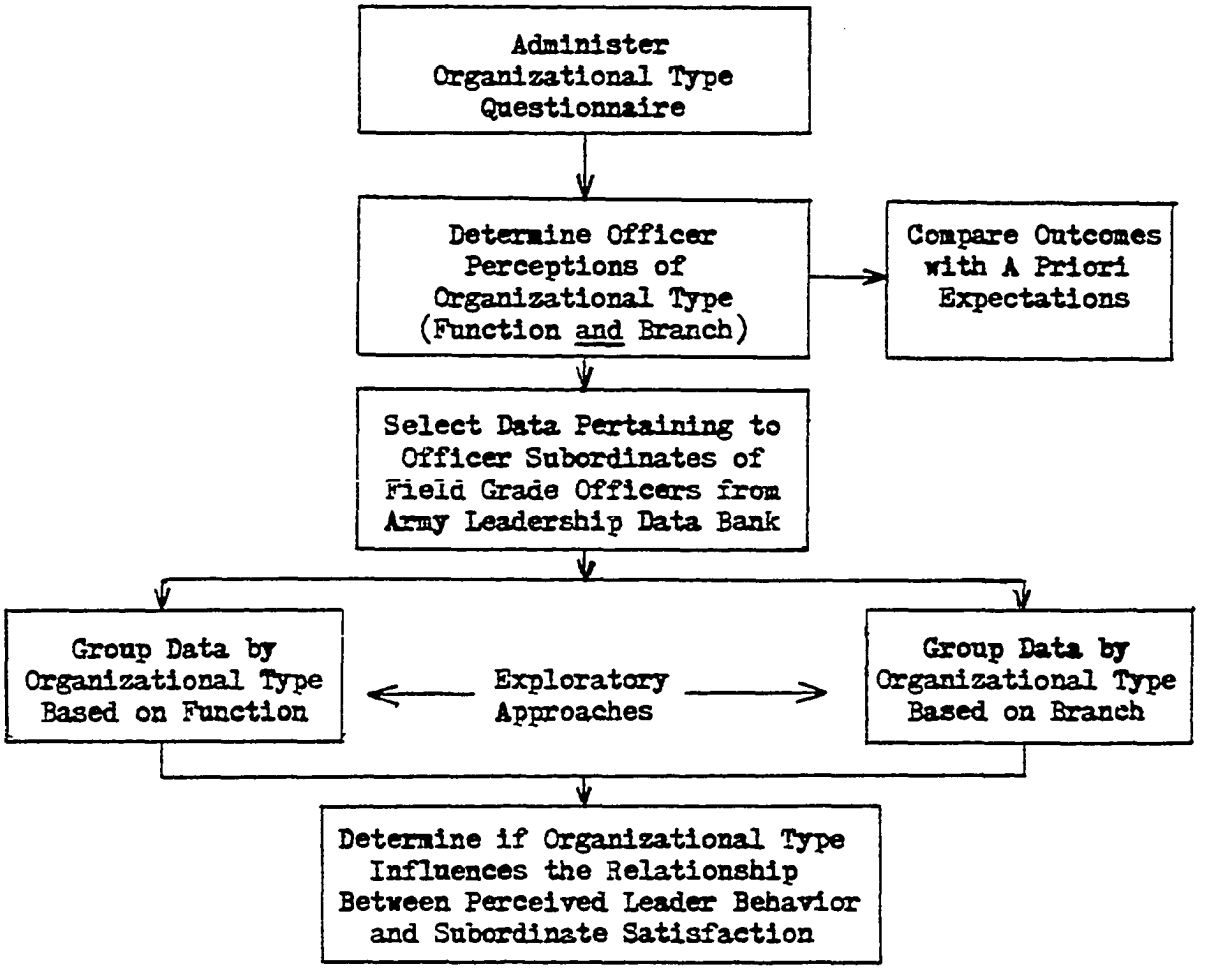
[1]Abraham K. Korman and Robert Tanofsky, "Statistical Problems of Contingency Models in Organizational Behavior," Academy of Management Journal 18 (June 1975): 393-97.

[2]Kerlinger, p. 300.

FIGURE 4-3

RESEARCH DESIGN



the functional area of assignment (combat, administration, logistics, education and training, and research) and (2) based on the branch of assignment (Infantry, Ordnance, etc.) of the officer-subordinates. This approach appeared expedient in view of the exploratory nature of the research. The Army's data were then analyzed in order to determine if organizational type and perceived leader behavior interact to influence subordinate satisfaction.

Categorization of Data by Organizational Type

Two approaches were taken to categorize the data by organizational type. The first approach was based on the broad function (organizational function) performed by the unit in which the leader behavior occurred. The second approach was based on the functional specialization (branch of assignment) of the subordinate who observed the leadership behavior. These two approaches will be discussed separately, below.

Categorization of Data by Organizational Function

The Army is so large and the functions it performs are so diverse that each of the various functional areas can be examined as if it were an autonomous organization system, in the context of the Kast and Rosenzweig Contingency Model. This notion was suggested by those writers when they stated:

> Even within the military differences exist which depend on the nature of specific activities. The organization utilized for training [similar to a peacetime combat unit] displays characteristics of the closed/stable/mechanistic system.

> However, in the design, development, and procurement of advanced weapon systems, the military organization can be described as relatively open/adaptive/organic. New approaches, such as program management and matrix organizations have emerged to meet changing requirements.[1]

The Army leadership data contain a variable which is coded in such a way as to identify the "mission" of the unit to which each subject was assigned at the time the data were gathered. These mission codes were grouped in this research to provide five general, meaningful definitions of Army functional areas, as shown in Figure 4-4.

FIGURE 4-4

DERIVATION OF FUNCTIONAL CATEGORIES

Functional Categories	Relevant Mission Classification
Combat	Divisional Forces Field Artillery (Non-Divisional) Air Defense Artillery
Education and Training	Schools and Training
Administration	Headquarters Post/Units
Logistics	Support and Medical
Research	Research, Development, Test and Evaluation

It was assumed that the characteristics of Army units working in these five functional areas (combat, education and training, administration,

[1]Kast and Rosenzweig, Contingency Views, p. 319.

logistics, and research) can be accurately described in terms of the Contingency Model. A second assumption was that Army Officers, based on their experiences with units operating in the various functional areas, can perceive differences in those organizational characteristics. Given a simplified description of the characteristics of organization types located at the extremes of a mechanistic-organic continuum, it was anticipated that a sample of officers could determine the relative location for each of the five functions on a mechanistic-organic scale.

An instrument, to be described below, was accordingly developed and administered to measure the perceptions of a small sample of selected officers at the U. S. Army Administration Center. The findings of this preliminary research were used to (1) answer the first research question and (2) categorize the sample of officer-subordinates from the Army Leadership data bank according to the organizational type of their units of assignment.

The writer's a priori expectations concerning the outcome of this preliminary research are shown in Figure 4-5. The rationale for these expectations follow.

Under peacetime conditions, units performing <u>combat</u> functions in the U. S. Army have organizational characteristics closely resembling those of the Kast and Rosenzweig closed/stable/mechanistic system.[1] Combat tactics and equipment reflect a high degree of standardization so that personnel can be interchanged at relatively frequent intervals and over vast geographical distances without transitional training and with minimal effect

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[1]Kast and Rosenzweig, <u>Contingency View</u>, pp. 315-18.

FIGURE 4-5

CATEGORIZATION OF ARMY FUNCTIONS
BY ORGANIZATIONAL TYPE
(A PRIORI EXPECTATIONS)

Army Functions	Organizational Type		
	Mechanistic	Intermediate	Organic
	Combat	Administration Logistics Education and Training	Research

on organizational efficiency. Combat units have relatively short time perspectives, partly because of the lack of concern for fixed, real assets (they are inherently mobile organizations) and partly because long range planning relating to combat organization, equipment, doctrine, and strategy is done by administrative, logistical, research, and education and training activities.

The structural system of the typical combat unit is very formal. Activities are highly specialized; tasks and roles are exceedingly specific, with an abundance of written operating procedures, regulations, and technical manuals. The psychosocial system of the Army combat unit in peacetime is characterized by formal interpersonal relationships, a dichotomized officer-enlisted social status structure, with role definitions that are specific and fixed, and in which the individual's entire life style, on and off duty,

is tightly controlled. Influence tends to be concentrated at the top of the organization. The motivational emphasis is on extrinsic rewards, security, and lower level need satisfaction.

Similarly, the managerial system of the typical combat unit is decidedly mechanistic, with hierarchical structures of authority and communications, hierarchical short term control structures, position-based authority, "by-the-book" resolution of conflict, and short term planning horizons. Authoritative, decisive leader behavior is highly valued. The Kast and Rosenzweig closed/stable/mechanistic organizational system (the mechanistic organizational type) describes, very closely, the combat units categorized under the combat organization function.

At the other extreme of the mechanistic-organic continuum, units performing research functions are best described as open/adaptive/organic. The development of modern weapons systems involves the Army in a turbulent, uncertain, and indeterminate suprasystem characterized by a dynamic techology, heterogeneous inputs, and relatively open boundary relationships. Many diverse organizations--government, business, and sometimes educational--with everchanging relationships, become involved in the fielding of a new weapons system.

Research units are continuously monitoring the scientific and business environments, evaluating competing alternatives, and initiating research along promising avenues in their strivings to reconcile combat user "wants" with the technological state of the art. In contrast to combat units, the emphasis is on problem solving. Goals are complex and

often vague, and individuals at all hierarchial levels may be involved in their formulation.

The technical system of the typical research unit is characterized by varied, nonroutine tasks; a very broad knowledge base; and nonprogrammed, heuristic methodology. Participants, scientists and military alike, have wide discretion in role definition; members tend to define the scope of their jobs by self-initiated activities. Members of research units typically have long range time perspectives, consistent with the time required for converting a new weapon idea into an operational system.

Though, perhaps, more highly formalized than their civilian counterparts, Army research organizations display innovative structure. Few, if any, are organized alike. The use of project management is widespread, and the Army has been an innovator in the search for better ways of organizing research effort. Reflecting government's efforts to control research and development expenditures in the military, written regulations and procedures abound, but are more general and policy-oriented than those which more closely prescribe activities in combat units.

In research units, the psychosocial system is characterized by more informal interpersonal relationships. The officer-enlisted social status structure assumes less importance; status tends to be based more upon expertise and professional norms. Part of this is due to the relatively low density of enlisted personnel in research organizations, but it is also influenced by the presence of many civilian scientists and administrators whose values are oriented more toward their professions

than toward military affairs. Influence tends to be more widespread throughout the organization and motivational emphasis is on intrinsic rewards, esteem, and self-actualization.

The managerial system of Army research organizations also tends toward organic characteristics. The managerial role is low key; decision making is more participative and nonprogrammed. Authority is based more on knowledge than position, and local control is asserted through interpersonal contracts, suggestions, and persuasion. Planning horizons in the managerial system tend to be long term. The Kast and Rosenzweig open/adaptive/organic organizational system seems to describe the Army's research function very well, and it was expected that Army officers would perceive it to be so.

Administration, logistics, and education and training functions were expected to be intermediate with respect to the mechanistic and organic organizational types. This is because each is comprised of organizations which range from one extreme to the other with respect to organizational type characteristics. Administrative units range from highly mechanistic organizations, such as a post finance office, to highly organic ones, such as the Headquarters, Department of the Army, which is engaged in overall planning, controlling, staffing, directing, and organizing, for accomplishment of the Army's mission. Education and training units may be obviously mechanistic (the basic training center) or relatively organic (the U. S. Army Command and General Staff College). Logistics units, too, may be mechanistic (an ammunition supply company) or organic (Headquarters, U. S. Army Munitions Command). For these reasons it was expected that

administration, education and training, and logistics functions would be perceived by Army officers as being intermediate with respect to the extremes of mechanistic and organic organizations.

Categorization of Data by Branch of Assignment

The second approach to categorizing the sample cases by organizational type was to sort them based on functional specialization, as indicated by the respondent's branch of assignment.

It was shown in Chapter 3 that the Army assigns officers to one of many branches which provide a degree of specialization resembling that of the functional departments of a business firm. The names of the branches are an indication of the function performed (e.g., Infantry, Engineers, etc.). As was discussed earlier, the Army formally groups the various branches based on three functional categories: (1) combat, (2) combat support, and (3) combat service support. The latter category, comprising 14 out of the Army's 22 branches, may be further divided into administrative services, technical services, and professional services categories. The categories, and their branch components, are shown in Figure 4-6.

Combat branches were expected to be perceived by Army officers as being relatively mechanistic, for the same reasons given above for classifying units performing peacetime combat missions as mechanistic. Combat branch officers (by the Army's design) tend to spend much of their early careers (the organizational socialization years) in combat units, and acquire values, cognitive orientations, and behavioral patterns consistent with those of the mechanistic organizational system.

FIGURE 4-6

CATEGORIES OF BRANCHES OF THE ARMY

Combat	Combat Support	Administrative Services	Technical Services	Professional
Air Defense Artillery	Engineer	Adjutant General	Chemical	Dental
Armor	Military Intelligence	Finance	Ordnance	Chaplain
Field Artillery	Military Police	Medical Service	Quartermaster	Judge Advocate General
Infantry	Signal	WAC	Transportation	Medical
				Medical Specialist
				Nurse
				Veterinary

The professional branches were expected to be perceived as organic. Decision-making processes tend to be nonprogrammable and judgmental with an emphasis on problem solving (versus performance in mechanistic systems). Authority tends to be based on knowledge (versus position) and individuals assume a high degree of responsibility. The status system is based upon expertise and professional norms rather than on military rank and regulations. The professional branches tend to have a high degree of autonomy with respect to influence patterns and are characterized by control processes that emphasize self-control. Characteristic of organic organizational systems, the professional branches are cosmopolitan in their orientations. They look more to their professions as referents for job knowledge and behavioral codes, and are less tolerant of restrictive rules and regulations than members of other branches.

The other three categories of branches, administrative, logistics, and combat support, were expected to be perceived as intermediate with respect to the mechanistic-organic continuum of organizational systems. Officers of these branches may find themselves assigned to units of all types, ranging from a mechanistic infantry division to an organic research laboratory even during the early years of their careers. The functions they perform are administrative and logistical and so the administrative, combat support, and technical branches were expected to be perceived as intermediate organizational types.

Figure 4-7 classifies the five Army branch categories by organizational type according to the writer's a priori expectations as to how the branches would be perceived by Army officers.

FIGURE 4-7

CATEGORIZATION OF ARMY BRANCHES
BY ORGANIZATIONAL TYPE
(A PRIORI EXPECTATIONS)

	Organizational Type		
	Mechanistic	Intermediate	Organic
Army Branch Categories	Combat	Administrative Combat Support Technical	Professional

Instrument for Determining Organization Type

Since an existing instrument for classifying military organizations on the basis of mechanistic/organic characteristics could not be located, a questionnaire was specially developed for this purpose (Appendix D). The questionnaire first defines mechanistic and organic organization types in terms of what are considered the key characteristics of the Kast and Rosenzweig Contingency Model, and then requires the subject to indicate the relative position of each of five Army functions and nineteen Army branches on eight-point Likert-type scales. The scales tap subjects' perceptions of the relative dominance of mechanistic or organic characteristics of the various functions and branches.

The instrument is a semantic differential without scale reversal.[1] Because of the complexity of the mechanistic-organic concept, it was felt

[1]Kerlinger, pp. 566-81.

that reversal would prevent subjects from providing consistent, simultaneous assessments of the five functions and nineteen branches in terms of the organizational type characteristics. Hence, the advantage of controlling for response bias (by scale reversal) was sacrificed in the interest of assuring that the values assigned to each of the branches and functions were meaningful to the respondent in terms of the values he assigned to other functions and branches. The various scales (Organizational Function and Branch of the Army) were arranged in random order based on a table of random numbers.[1]

The questionnaire also provided an optional section for biographical data. Variables requested were age, sex, military rank (grade), total years of active service, branch of assignment, and education. The scales used for measuring these variables were identical to those of the Army Leadership Study so that the sample of officers used to determine organizational type could be compared with the sample of officers obtained from the Army's data bank.

The questionnaire was pretested on two separate occasions before use in this research. Appropriate changes were made to eliminate ambiguous wording and to shorten the time required for administration.

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[1]John E. Freund and Frank J. Williams, Elementary Business Statistics: The Modern Approach (Englewood Cliffs, N. J.: Prentice-Hall, 1964), pp. 446-49.

Data Collection

Sixty copies of the questionnaire were sent to the U. S. Army Administration Center at Fort Benjamin Harrison, Indiana, for data collection. Questionnaires were distributed to selected officers located at Fort Benjamin Harrison, based principally on the criterion of availability. The center was requested to try to obtain as subjects senior captains and field grade officers, since it was assumed that such officers would have sufficient exposure to the various functional areas and branches to assess them meaningfully.

The description of the methodology to this point has focused on procedures used to arrive at a method of categorizing cases in the Army Leadership data bank by organizational type. The next section explains the methodology used to analyze the Army's data and answer the second research question.

Operational Definitions

The instrument used to gather the data for this study is the Continental Army Command (CONARC) Leadership Questionnaire described in Chapter 3, and attached as Appendix B. The data was gathered under the circumstances described earlier, but only data derived from questionnaires filled out by officers who were subordinates of field grade officers were used in this research. Figure 4-8 lists the variables used to answer the research question.

FIGURE 4-8

RESEARCH VARIABLES

Variable	Type
Leader Behavior	
Consideration (CS)	Independent
Initiating Structure (IS)	Independent
Consideration/Initiating Structure (CSIS)	Independent
Organizational Function (OF)	Independent
Branch of Assignment (BA)	Independent
Satisfaction with Leader Performance (SAT)	Dependent

Leader Behavior Variables

The leader behavior variables were derived from the forty-three leader behavior items of the CONARC Leadership Questionnaire. As indicated in Chapter 3, the CONARC questionnaire is based on the Ohio State leadership research which describes leader behavior in terms of two factorially derived dimensions, consideration, and initiating structure. These two dimensions have been defined by Fleishman and Peters as follows:

> Initiating Structure reflects the extent to which an individual is likely to define and structure his own role and those of his subordinates toward goal attainment.
>
> Consideration reflects the extent to which an individual is likely to have job relationships characterized by mutual

trust, respect for subordinates' ideas, and consideration of their feelings.[1]

Appendix E shows the relationships (where they exist) between the CONARC Leadership Questionnaire and various Ohio State instruments. Only those items that are clearly shown to be associated with one or more versions of the Ohio State leadership instruments (the Leader Behavior Description Questionnaire, the Supervisory Behavior Description Questionnaire, or the Leader Behavior Description Questionnaire--Form XII) were used in this research. Based on the analysis illustrated in Appendix E, eleven consideration (CS) items and seven initiating structure (IS) items were used, as identified in Figure 4-9.[2]

Figure 4-10 shows the representation of the 18 items used in this study in four Ohio State instruments that have traditionally been used to measure leader behavior and attitudes. The numerator of each fraction in the matrix shows the number of items (for the given dimension, consideration or initiating structure) represented in this study, while the denominator shows the total number of items of the given dimension contained in the applicable Ohio State instrument. For example, the instrument used here includes five out of the 15 consideration items and six out of the 15 initiating structure items contained in the Halpin and Winer LBDQ.

It is recognized that this derived instrument represents an imperfect operationalization of the consideration and initiating structure constructs. The instrument does not coincide exactly with any of the Ohio State versions. Some of the items are worded slightly differently,

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[1]Edwin A. Fleishman and David R. Peters, "Interpersonal Values, Leadership Attitudes, and Managerial 'Success'," Personnel Psychology 15 (1962): 130.

[2]The Army's Leadership Questionnaire (Appendix B) has been annotated to identify consideration items (CS) and initiating structure items(IS).

FIGURE 4-9

LEADER BEHAVIOR ITEMS[a]

CONSIDERATION ITEMS

Item No.	Item
2	He is easy to understand (381).
4	He expresses appreciation when a subordinate does a good job (381).
5	He is willing to make changes in ways of doing things (382).
17	He is approachable (385).
19	He stands up for his subordinates even though it makes him unpopular with his superior (385).
21	He criticizes a specific act rather than an individual (386).
23[b]	He resists changes in ways of doing things (386).
24	He rewards individuals for a job well done (386).
28[b]	He criticizes subordinates in front of others (388).
34	He backs up subordinates in their actions (389).
36	He explains the reason for his actions to his subordinates (390).

INITIATING STRUCTURE ITEMS

Item No.	Item
1	He lets the members of his unit know what is expected of them (381).
8	He offers new approaches to problems (382).
10	He sets high standards of performance (383).
13	He constructively criticizes poor performance (384).
14	He assigns immediate subordinates to specific tasks (384).
18	He gives detailed instructions on how the job should be done (385).
27	He sees to it that people under him work up to their capabilities (387).

NOTES:

a. Numbers in parentheses refer to page numbers where items are located in the CONARC Leadership Questionnaire (Appendix B).

b. These items have reversed scoring.

FIGURE 4-10

REPRESENTATION OF VARIOUS OHIO STATE INSTRUMENTS IN CONARC LEADERSHIP QUESTIONNAIRE

Dimension	Halpin & Winer LBDQ	Fleishman SBDQ	Stogdill LBDQ	Fleishman LOQ
Consideration	5/15	11/28	3/10	6/20
Initiating Structure	6/15	6/20	4/10	5/20

and the number of items used for each dimension varies from the traditional models. Further, the Army's scales are seven-point scales in contrast to the five-point scales of the Ohio State instruments.[1] Kerr and others have discussed this problem of inconsistent instrumentation, and cite an unpublished paper by House in suggesting that " . . . differences in the various forms of the Ohio State scales may account for some of the divergent findings in the literature."[2] To compensate for this, certain quality control analyses, to be described below, have been performed on the data.

This relatively cautious linking of the CONARC questionnaire to the Ohio State instruments secures some of the advantages of the latter for the derived instrument. According to Kerr and others, the advantages of the Ohio State leadership scales are:[3]

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[1]Many distinguished researchers have used fewer than the standard numbers of Ohio State leader behavior items in their research. See, for example, House and Dessler, pp. 29-62; and Stinson and Johnson, pp. 242-52.

[2]Kerr et al., "Toward a Contingency Theory," p. 65.

[3]Ibid., p. 64.

1. The Ohio State scales are theoretically meaningful and can be linked to other research trails in the literature

2. They have been factor-analytically determined

3. They are descriptive of behaviors which are readily identifiable, and raters can agree on what behaviors they have observed

4. They appeal to common sense

5. Much quality research has been done with the scales and normative data have been accumulated

CS AND IS

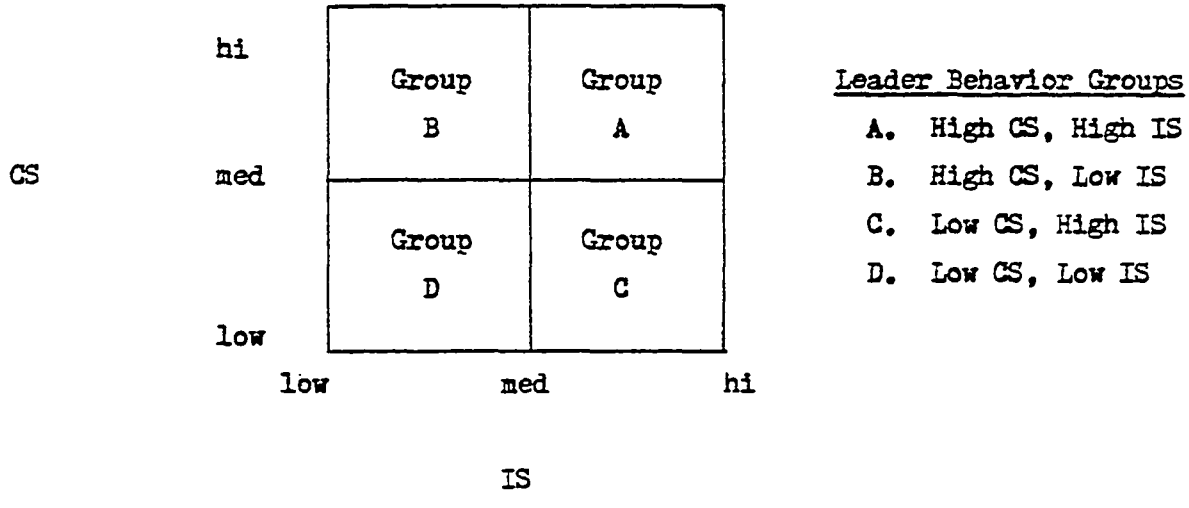
Leader behavior was measured separately for the CS and IS dimensions as defined above. An example of one of the eleven CS items, taken from the CONARC questionnaire, was shown in Chapter 3 as Figure 3-2. Both CS and IS scores were calculated from the first column of the questionnaire (column 1 in Figure 3-2), on which the respondent indicated the frequency at which his superior actually displayed the given behavior. The respondent was directed to circle the number opposite the word or phrase which most closely reflected his perception of his superior's behavior. The respondent's score for CS was calculated by averaging his scores in column one for the eleven CS items. IS was scored in a like manner; the individual's total score for IS is the mean of his responses on the first column of the seven IS items.

CSIS

The independent variable CSIS is a composite score in which the two leader behavior dimensions CS and IS are conceptualized as " . . . a pair of coordinates with reference to which any leader's behavior may be

FIGURE 4-11

CONCEPTUALIZATION OF THE CSIS VARIABLE



described."[1] High and low levels of CS and IS were established by dividing the total sample at the median for each dimension to provide the four groups of cases shown in Figure 4-11. Group A consists of those individuals scoring above the median on both CS and IS; Group B consists of those individuals scoring above the median on CS, but below the median on IS; and so forth. This approach to conceptualizing leader behavior based on high and low levels of CS and IS was also used by Evans for formulating hypotheses to test his path-goal theory.[2]

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[1]R. Jean Hills, "The Representative Function: Neglected Dimension of Leadership Behavior," Administrative Science Quarterly 8 (1963): 95, citing Andrew W. Halpin, The Leadership Behavior of School Superintendents (Studies in Educational Administration, Mimeo, No. 6: Chicago, 1959).

[2]Evans, "Path-Goal Relationships," p. 284.

Organizational Function (OF)

The independent variable Organizational Function (OF) is operationalized through a variable labeled "Mission" in the Army's leadership data bank. Based on examination of responses to questions 1, 2, and 4 of Section I, Part II of the Army's Leadership Questionnaire (indicating the type of unit and position to which assigned) respondents were classified by the Army researchers into one of ten mutually independent categories, or "Missions", depending upon the primary function of the unit. Separate data codes were assigned for each mission. Figure 4-12 shows how the Army coded the data in order to identify the mission of the unit to which each respondent was assigned.

FIGURE 4-12

ARMY MISSION CLASSIFICATIONS

Mission	Data Code	Mission	Data Code
Divisional Forces	1	Research, Development, Test and Evaluation	6
Schools and Training	2	Specialized Units	7
Field Artillery (Non-Divisional)	3	Military Intelligence	8
Support and Medical	4	Air Defense Artillery	9
Headquarters Post/Units	5	Woman's Army Corps	0

For this research, units with combat missions (Non-Divisional Field Artillery, Divisional Forces, and Air Defense Artillery) were grouped together into a single Combat function. Military Intelligence (MI) was not treated as a separate function in this research because it was anticipated that the number of cases would be too small to permit meaningful analysis. Furthermore, since it seemed inappropriate to incorporate them into one of the other functional classifications, the MI cases were omitted from consideration with respect to the OF variable.

The cases coded as Woman's Army Corps under the Mission variable were also excluded from the OF variable because it does not constitute a distinct Army mission. Further, since WAC officers have, for a number of years, been working in different functional areas, it was expected that the number of cases identified under the WAC "mission" coding would be trivial.

Cases coded as Specialized Units were also omitted because the Army failed to document their criteria for grouping respondents under that particular mission classification. In its present form, the classification has little meaning, either in a military sense or in a theoretical sense.

Thus, OF is defined as an independent variable consisting of 5 categories (or levels). The new variable was derived directly from the Mission variable of the Army Leadership Study, as shown in Figure 4-13. More descriptive titles (Combat, Education and Training, Administration, Logistics, and Research) were assigned consistent with the functional connotations of the various Mission classifications. As explained earlier and illustrated in Figure 4-13, OF was used as one method of grouping cases into mechanistic, intermediate, or organic organizational types.

FIGURE 4-13

DERIVATION OF THE ORGANIZATIONAL FUNCTION VARIABLE

Organizational Function Categories	Relevant "Mission" Classifications
Combat	Divisional Forces Field Artillery (Non-Divisional) Air Defense Artillery
Education and Training	Education and Training
Administration	Headquarters Post/Units
Logistics	Support and Medical
Research	Research, Development, Test and Evaluation

Branch of Assignment (BA)

The Branch of Assignment (BA) variable is defined as the Army branch of assignment of the subordinate who is describing the leader behavior of his field grade officer superior. The information on branch of assignment was provided by the respondent in his answer to item 6 of Part I of the CONARC Leadership Questionnaire (Appendix B). The subordinate indicated his branch of assignment by circling the appropriate data code. The nineteen Army branches represented in the Army study are shown in Figure 4-14,

FIGURE 4-14

ARMY BRANCH CLASSIFICATIONS

Data Code	Army Branch	Data Code	Army Branch
1	Air Defense Artillery (ADA)	11	Medical Corps (MC)
2	Adjutant General's Corps (AGC)	12	Military Intelligence (MI)
3	Armor (Armor)	13	Military Police Corps (MPC)
4	Chaplain Corps (CH)	14	Medical Service Corps (MSC)
5	Chemical Corps (CMLC)	15	Ordnance Corps (ORD)
6	Corps of Engineers (CE)	16	Quartermaster Corps (QMC)
7	Field Artillery (FA)	17	Signal Corps (SIGC)
8	Finance Corps (FC)	18	Transportation Corps (TC)
9	Infantry (INF)	19	Woman's Army Corps (WAC)
10	Judge Advocate General's Corps (JAGC)		

identified by data code.[1] The Branch of Assignment variable was used as a second approach to grouping cases into mechanistic, intermediate, or organic organizational types in accordance with the scheme outlined in Figure 4-3.

[1]The CONARC study did not obtain data from personnel assigned to the Dental Corps, Veterinary Corps, Army Nurse Corps, and the Army Medical Specialist Corps. Consequently, these four branches were omitted from this research. Also, at the time the data were gathered, a twenty-third branch, the Chemical Corps, existed. Though it has been subsequently merged with the Ordnance Corps, it is recorded as a separate branch in the Army's Leadership data bank, and is treated as such in this research.

Satisfaction with Leader Performance (SAT)

Satisfaction with Leader Performance (SAT) is the dependent variable of this research. SAT is a global measure of the respondent's satisfaction with the overall performance of his superior. The variable comes from the subject's response to the first item of Part II, Section III, of the Army questionnaire, where the subject reported his perception of his superior's overall performance in his current assignment.

The use of a measure of satisfaction with supervision as the sole criterion of effectiveness is a serious limitation of this research and, consequently, the approach must be justified in some detail. A recent review of the literature, by Campbell and others, describes two general approaches to the measurement of organizational effectiveness, the "goal-centered view" and the "natural systems view." The former, which assesses organizational effectiveness based on the measurement of how well a set of stated goals is being achieved, focuses on the development of criterion measures such as productivity, efficiency, profitability, etc.[1]

The natural systems approach sees effectiveness as the ability of an organization to maintain " . . . its viability or existence through time without depleting its environment or otherwise fouling its nest," and focuses on measures designed to determine " . . . if an organization is internally consistent within itself, whether its resources are being judiciously distributed over a wide variety of coping mechanisms, whether it's

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[1]John P. Campbell et al., Organizational Effectiveness, pp. 5-21.

using up its resources faster than it should, and so forth."[1] Organizational Development (OD) is a typical natural systems approach where the effective organization is, according to Campbell and colleagues, one which is:

> . . . aware of, open to, and reactive to change. It will be searching for new forms and methods of organizing. It will have an optimistic view of its members, allowing them room to self-actualize and trusting them with the responsibility for their own efforts. It will also seek to insure the satisfaction of its members since that is its reason for existence. To these ends, conflict will be confronted, not avoided, and communication will occur freely and effectively [emphasis added].[2]

The use of satisfaction with leadership as a criterion measure of organizational effectiveness has some support, then, from the perspective of the natural systems approach. But, it is deficient as a general criterion of leader effectiveness on several counts. First, it measures but a single element of an organization's coping or reactive ability. Steers criticizes such a singular approach on the grounds that "univariate models" of organizational effectiveness (1) lack comprehensiveness, (2) reflect " . . . the researcher's value premises instead of objective measures of the effectiveness of an organization . . .", and (3) fail to show how the selected variable contributes "meaningfully to an understanding of the effectiveness construct. . . ."[3] With respect to the conceptual model of the research (Figure 4-1), the SAT variable measures a very narrow aspect

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[1]Ibid., p. 6. [2]Ibid., p. 19.

[3]Richard M. Steers, "Problems in the Measurement of Organizational Effectiveness," Administrative Science Quarterly 20 (December 1975): 546-58.

of leader effectiveness, and neglects entirely such important elements as productivity, quality of output, etc.

Second, satisfaction with leadership is but one facet of the larger global concept of member job satisfaction. Smith and colleagues have operationalized five distinct facets of member job satisfaction in their Job Description Index (work itself, co-workers, supervision, pay, and promotions).[1] Wanous and Lawler used twenty-three facets in research which compared various approaches to the measurement of overall job satisfaction.[2]

Third, given that the relevant facets of job satisfaction can be adequately identified, at least nine distinct ways of operationalizing job satisfaction can be found in the literature, according to Wanous and Lawler.[3] The methods that have been used range in extremes of complexity. The simplest approach is one in which job satisfaction is measured by summing job facet satisfaction across all facets of a job. The more complex models employ weighted sums of "discrepancy equations", the weights being the importance attached to the various facets of job satisfaction by the respondent.[4] Discrepancy equations measure satisfactions in terms of the difference between responses to such questions as "How much is there now?" and "How much should there be?"[5] The differences are then summed across the various facets of job satisfaction.

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[1]Patricia C. Smith et al., The Measurement of Satisfaction in Work and Retirement (Chicago: Rand McNally & Co., 1969), pp. 69-85.

[2]John P. Wanous and Edward E. Lawler II, "Measurement and Meaning of Job Satisfaction," Journal of Applied Psychology 45 (1972): 95-105.

[3]Ibid., p. 95. [4]Ibid., p. 96. [5]Ibid.

Wanous and Lawler suggest that the conflicting results of research on job satisfaction is at least partly attributable to the different methods of operationalization, and that the appropriate method depends upon the variables to which the satisfaction measure is to be related.[1]

The fourth weakness in using subordinate satisfaction with leadership as a criterion of leader effectiveness is that generally only low positive relationships have been found between satisfaction and performance. In the same vein, there is considerable controversy about the direction of the causal relationships; i.e., there is the question about whether satisfaction causes performance or whether performance causes satisfaction.

Wanous has reviewed the changing ideas about this causal relationship beginning with the " . . . human relations era following Hawthorne . . ." when it was assumed that satisfaction caused performance.[2] Subsequent research in the 1950's was conflicting. After the 1968 research of Porter and Lawler, the tendency was to support the "performance causes satisfaction" thesis, though with a growing recognition that the cause-effect relationship was two-way.[3] The latest research, including Wanous'

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[1]Ibid., p. 103.

[2]John P. Wanous, "A Causal-Correlational Analysis of the Job Satisfaction and Performance Relationship," Journal of Applied Psychology 59 (1974): p. 139.

[3]Wanous, pp. 139-44; E. E. Lawler and L. W. Porter, "The Effect of Performance on Job Satisfaction," Industrial Relations 7 (1967): 20-28; E. A. Locke, "Job Satisfaction and Job Performance: A Theoretical Analysis," Organizational Behavior and Human Performance 5 (1970): 484-500; and R. A. Sutermeister, "Employee Performance and Employee Need Satisfaction--Which Comes First?," California Management Review 13 (1971): 43-47.

own study, indicates contingency relationships between satisfaction and performance. For instance, Wanous found evidence in his sophisticated, longitudinal study of newly hired telephone operators, that performance causes intrinsic satisfaction whereas extrinsic satisfaction (including satisfaction with supervision) causes performance.[1] Further, Sheridan and Slocum in a longitudinal study using a cross-lagged correlation design, found evidence that for their sample of managers, performance leads to satisfaction while for machine operators, satisfaction has a causal effect on performance.[2] Hence, concurrent measures of satisfaction (characteristic of the data in this research) may be indicators of the past, present, or future performance depending upon unique situational factors.

A fifth (but seldom mentioned) problem inherent in using satisfaction with leadership as a criterion of effectiveness involves the phrasing of the questionnaire item. Rarely, if ever, do researchers differentiate, in their phrasing of the item, between (1) the subject's satisfaction with his leader's behavior with respect to the subject's own personal goals and (2) the subject's satisfaction with his leader's behavior with respect to the organization's goals. This is true in the case of the Army's leadership questionnaire; one cannot be certain which of the two possible interpretations were applied by respondents. Under such circumstances, the validity of the satisfaction measure(s) as an indication of

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[1]Wanous, pp. 142-43.

[2]John E. Sheridan and John W. Slocum, Jr., "The Direction of the Causal Relationship Between Job Satisfaction and Work Performance," Organizational Behavior and Human Performance 14 (1975): 159-72.

leader, or organizational, effectiveness depends upon the degree of integration of individual and organizational goals.[1] This research assumes, necessarily, a high degree of integration.

In general, then, satisfaction with leader supervision fails as a suitable measure of leader effectiveness, at least from the natural systems point of view.

From the "goal-centered view", however, there is some justification for treating subordinate satisfaction with supervision as a criterion of effectiveness. The U. S. Army, in building an "All-Volunteer Army," has come to value satisfaction with supervision as an end in itself--as an indication that the "informal contract" meets the expectations of the soldier and the organization, and that a " . . . mutually satisfactory relationship exists."[2] This notion is implicit in the Army's assumption of the existence of leadership problems when various leader behaviors fail to meet the expectations of survey respondents. The Army's general approach to solving these "problems" identified in its research is directed toward improving member satisfaction with leader behavior. While the satisfaction with leadership criterion falls far short of the idealized approach of the Campbell study, and though it may be dangerous for the Army to accord too much relevance to it (in view of the Army's unique combat mission), the

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[1]For a discussion of the integration of goals and effectiveness, see Hersey and Blanchard, pp. 101-03.

[2]U. S., Dept. of the Army, Leadership for the 1970's, p. ii.

criterion appears adequate to meet the limited objectives of this exploratory research.[1]

The Research Hypothesis

Hypotheses are not normally required in exploratory research. However, a hypothesis was formulated in response to the second research question, concerning the moderating influence of OT on the relationship between perceived leader behaviors and leader effectiveness. This is because there appeared to be theoretical bases in the leadership literature for deducing expected interrelationships among variables suggested by the research question. The formulation of hypotheses makes possible relatively unbiased testing of the relationships deduced.[2]

As a basis for answering the research question "Does organizational type have a moderating influence on the relationship between leadership style and organizational effectiveness?", a hypothesis is presented and explained in terms of the research literature.

Hypothesis

It is hypothesized that organizational type has a moderating effect on the relationship between leader behavior (CSIS) and subordinate satisfaction with leader performance (SAT). Subordinates in mechanistic organizations will tend to be satisfied with the performance of leaders who

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[1]Campbell et al., Organizational Effectiveness, p. 37.

[2]Kerlinger, p. 20.

display high CS and low IS behaviors. The subordinates will be dissatisfied with those leaders who display any other combination of high and low CS and IS. Subordinates in organic type organizations will tend to be satisfied with the performance of leaders who are high on both CS and IS, and dissatisfied with leaders who display any other combination of high and low CS and IS. However, consideration behaviors will be more important for satisfaction of subordinates in mechanistic organizations than in organic organizations.

Rationale

The rationale for the research hypothesis represents an application of the findings of path-goal research on leader behavior to the macro level of the organization.[1] The first section, below, explains how IS and various satisfaction variables may be influenced by organizational type; the second section accomplishes the same objective for CS. The third section suggests how subordinate satisfaction may be influenced by various combinations of high and low CS and IS, depending on whether the relevant behaviors occur in mechanistic, intermediate, or organic organizations.

Organizational Type and IS

The findings of Path-Goal theory suggest that subordinates in mechanistic type organizations will tend to be satisfied with the performance of leaders who display low levels of IS behaviors, and that they will tend to be dissatisfied with leaders who display high levels of IS behavior.[2] Subordinates in organic type organizations will tend to be satisfied with

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[1]House and Dessler, pp. 53-55.

[2]The following discussion reflects the researcher's own broad deductive generalization of the House and Dessler findings to the macro level of the organization.

the performance of leaders who display high levels of IS, and dissatisfied with leaders who display low levels of IS behavior.

The thrust of the notion is that in mechanistic organizations, where activities are clearly specified, individuals' expectations about being able to accomplish performance goals approach unity. Further, their expectations about the instrumentality of successful job performance for obtaining valued rewards are hardened by institutionalized reward systems over which immediate supervisors have little influence. Thus, structuring behaviors on the part of leaders are redundant and are perceived negatively by subordinates, causing low member satisfaction with such leadership.

In organic organizations, however, where activities and roles are much less specific, leaders, through their structuring (IS) behaviors, are able to reduce uncertainties surrounding job performance. The effect is that high levels of IS behaviors on the part of leaders enhance members' expectations about their abilities to attain performance objectives. Further, in organic systems, where reward systems are less institutionally specified, leaders, through structuring behaviors, can clarify the paths by which member goals may be attained. Leaders' IS behaviors, thus, have positive valence and result in subordinates being relatively satisfied with leader performance.

The ideas described above have considerable empirical support. House and Dessler, in two separate studies, sampled members of two electronics firms (firms A and B) including "managers, quaisi-professional salaried employees, white-collar clerical employees, foremen, technicians,

and low skilled blue-collar assembly workers."[1] In testing their Path-Goal theory, they found strong evidence in both firms that instrumental leadership (measured with Ohio State IS items) is negatively correlated with both intrinsic and extrinsic satisfaction under conditions of high task structure, and positively correlated with the same variables under low task structure. For conditions of medium task structure, the evidence was mixed.

Szilagyi and Sims obtained similar, though weaker, results in their test of the Path-Goal theory in a large university medical center. They tested the relationship between IS and two measures of satisfaction (satisfaction with work and satisfaction with supervision) as moderated by "role ambiguity."[2] They found, with respect to administrative (managerial) personnel, negative correlations between IS and the two satisfaction variables under conditions of low role ambiguity, and positive correlations under high role ambiguity. The relationship between IS and satisfaction with work was strong and highly significant under conditions of high role ambiguity.[3]

Green obtained strong verification of the Path-Goal thesis in his study of first line supervisors and their engineer, scientist, and technician subordinates in research and development divisions of three firms. Correlating IS with both intrinsic and extrinsic satisfaction, he found

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[1]House and Dessler, pp. 40-53. [2]Ibid., pp. 625-31.

[3]Szilagyi and Sims, pp. 622-33.

significant, positive correlations when task structure was low, and significant negative correlations when task structure was high.[1]

Two problems were faced in applying Path-Goal research to the present study. First, the dependent variable in this study is subordinate satisfaction with leader performance, whereas the House and Dessler and Green studies used intrinsic and extrinsic satisfaction. The 8 intrinsic scales of House and Dessler describe " . . . the degree to which subjects had opportunities for autonomous action, personal development, and challenging and meaningful work."[2] The extrinsic satisfaction scales describe " . . . the degree to which subjects perceived pay, advancement, recognition, and security as adequate."[3] To the degree that subordinates held their supervisors responsible for those conditions, both intrinsic and extrinsic satisfaction scales are indicators of subordinate satisfaction with their supervisors.

Second, in applying the Path-Goal findings here, there is the danger of overgeneralization from the micro-level moderators, task structure and role ambiguity, to the macro-level moderator (Organizational Type) used in this study. This is a problem because other important variables may also be involved in moderating the relationship between IS and SAT at the macro level. Nevertheless, it is assumed here that mechanistic organizations will have, on the average, jobs that are high in task structure and

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[1]Charles N. Green, "The Path-Goal Theory of Leadership: A Replication and an Analysis of Causality," paper presented at the 34th meeting of the Academy of Management, Seattle, Wash., 18-21 August 1974, p. 15.

[2]House and Dessler, p. 45. [3]Ibid.

low in role ambiguity; high in task repetitiveness and low in task autonomy. The converse is assumed for organic organizations.

The findings of Path-Goal research are extrapolated to the macro organizational level in Figure 4-15. Correlations found by the various researchers between IS and satisfaction criteria for conditions of high task structure, high task repetitiveness, low role ambiguity and low task autonomy are shown under the mechanistic organizational type. For conditions of low task structure, low task repetitiveness, high role ambiguity and high task autonomy, the research correlations are shown under the organic organizational type. Where the moderating variables were trichotomized to provide for a "medium" level of task structure, the correlations found in the applicable research study are shown in Figure 4-15 under the intermediate organizational type.

The first four studies cited in Figure 4-15 refer to the supportive research described above. But, there is some research that fails to corroborate the Path-Goal Theory, notably the studies of Stinson and Johnson, and of Downey, Sheridan, and Slocum; whose findings relevant to this study are summarized at the bottom of Figure 4-15.[1]

The Stinson and Johnson findings are particularly interesting since they examined the moderating effect of task repetitiveness and task autonomy. None of the Stinson and Johnson correlations are significant, but the signs of the correlation coefficients are opposite to what would be predicted by

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[1]Stinson and Johnson, pp. 242-52; and H. Kirk Downey et al., "Analysis of Relationships Among Leader Behavior, Subordinate Job Performance and Satisfaction: A Path-Goal Approach," Academy of Management Journal 18 (June 1975): 253-62.

FIGURE 4-15

PARTIAL CORRELATIONS BETWEEN INITIATING STRUCTURE AND SATISFACTION CRITERIA

Study	Moderator	Criterion	Organizational Type: Mechanistic	Intermediate	Organic
House & Dessler (A) (1974)	Task Structure	Intrinsic Sat	-.33**	.19	.26[b]
		Extrinsic Sat	-.16	-.05	.32**[b]
House & Dessler (B) (1974)	Task Structure	Intrinsic Sat	-.48**	-.23	.40[b]
		Extrinsic Sat	-.48**	-.36	.12
Szilagyi & Sims (1974)[a]	Role Ambiguity	Sat w/Work	-.182	---	.601***
		Sat w/Supvr	-.036	---	.153
Green (1974)	Task Structure	Intrinsic Sat	-.29*	.17	.30**
		Extrinsic Sat	-.33**	.19	.27*
Stinson & Johnson (1975)	Task Structure	Intrinsic Sat	.22	---	-.25[b]
		Sat w/ Supvr	-.01	---	-.11
	Task Repetitiveness	Intrinsic Sat	.18	---	.22
		Sat w/Supvr	.20	---	-.28[b]
	Task Autonomy	Intrinsic Sat	-.01	---	.17
		Sat w/Supvr	-.04	---	-.06
Downey, Sheridan, & Slocum (1975)[a]	Task Structure	Sat w/Supvn	.18**	---	.06

Notes: a. Zero-order correlations.
b. Significant difference between high and low Task Structure or high and low Task Repetitiveness.

* $p < .10$ ** $p < .05$ ***$p < .01$

the Path-Goal Theory. The coefficients of correlation between IS and intrinsic satisfaction are significantly different for conditions of high and low task structure. Also, the coefficients for IS and satisfaction with supervisor differ significantly under conditions of high and low task repetitiveness.

Contradictions in the findings of Path-Goal research between various studies may be due to differences in populations studied and/or differences in operationalization of variables. The instruments used to determine task structure varied, as did those used to measure intrinsic satisfaction and satisfaction with supervision. The Downey et al. findings seem relatively weak, since task structure was operationalized merely by allocating all machine operator cases to the high-task structure group and all manager cases to the low task structure group. Nevertheless, the weight of evidence shown in Figure 4-15 seems to support the Path-Goal thesis.

Organizational Type and CS

The Path-Goal Theory also suggests that subordinates in mechanistic type organizations will tend to be highly satisfied with leaders who display high levels of CS behaviors, and dissatisfied with leaders who display low levels of CS behavior. Subordinates in organic type organizations will also express satisfaction with leaders who display high levels of CS behaviors, but the relationship between SAT and CS will not be as strong as in mechanistic organizations.[1]

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[1]The following discussion reflects the researcher's own deductive generalization of the House and Dessler findings to the macro level of the organization.

The rationale here is that the closely controlled environment of the mechanistic organization tends to be inherently dissatisfying to the average individual. Members receive little intrinsic satisfaction from jobs that are highly structured and repetitious and in which they have little autonomy. Jobs in mechanistic organizations tend to have high potential for member frustration, stress, and conflict. Under these circumstances consideration (CS) behaviors on the part of leaders alleviate some of the unpleasant aspects of the task and thereby facilitate job performance. Thus, high CS behaviors by leaders in mechanistic organizations will be associated with high member satisfaction with leadership, and vice versa.

In organic organizations, on the other hand, jobs tend to have less inherent potential for generating frustration, stress and conflict. Nevertheless, CS behaviors still have some utility in smoothing paths to goal performance and securing valued psychosocial rewards for members. Consequently, it is expected that high CS leader behaviors in organic organizations will be associated with high member satisfaction with leadership, but the relationship will be weaker than in mechanistic organizations.

Path-Goal research also provides a body of empirical evidence concerning CS behaviors. The House and Dessler studies related "supportive leadership" to measures of member satisfaction under conditions of high, medium, and low task structure. Their supportive leadership measure was similar to the Ohio State Consideration scales except that it omitted participation items, which were treated as a separate dimension. In one firm (Firm A) House and Dessler found supportive leadership to be

positively related to both intrinsic and extrinsic satisfaction under conditions of high and medium task structure. Only low positive correlations were found for low task structure.[1]

In the second firm (Firm B) moderate positive correlations were found between supportive leader behavior and intrinsic satisfaction for high and moderate task structure and a very low correlation for low task structure, consistent with the Path-Goal hypothesis. However, in Firm B, the correlation between supportive behavior and extrinsic satisfaction under high task structure was very low, contrary to expectations under the theory. Further, under low task structure, a low negative correlation was obtained for the same two variables, also contrary to expectations.[2]

Green's research is supportive of Path-Goal theory with respect to intrinsic satisfaction. He found a high positive, significant correlation between CS and intrinsic satisfaction for high task structure, a moderate positive correlation for medium task structure, and a lower positive correlation for low task structure. But, for extrinsic satisfaction, he obtained a low positive correlation for high task structure; a moderate, positive correlation for medium task structure; and a low positive relationship for low task structure. His findings for extrinsic satisfaction were similar to the House and Dessler findings for Firm B.[3]

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[1]House and Dessler, pp. 40-55. [2]Ibid.

[3]Green, p. 15.

The Stinson and Johnson research strongly supports the theory for all three of their moderator variables: task structure, task repetitiveness, and task autonomy. Correlations are quite high and ten out of twelve are significant at the .10 level.[1] Downey and others found similar strong support for the Path-Goal hypothesis in examining the relations between CS and satisfaction with supervision under conditions of high and low task structure.[2]

The research findings relating to correlations between Consideration and certain satisfaction variables have been extrapolated in Figure 4-16 to the macro organization level. The assumptions are that (1) correlations for high task structure, high task repetitiveness, and low task autonomy are relevant to mechanistic type organizations; (2) correlations for medium task structure are relevant to intermediate type organizations; and (3) correlations for low task structure, low task repetitiveness, and high task autonomy are relevant to organic type organizations. Figure 4-16 provides very strong evidence in support of the Path Goal theory.

Organizational Type and CSIS

The hypothesized relationships between CSIS and SAT under the influence of organizational type are summarized in Figure 4-17. Although not stated in the hypothesis, the figure suggests relationships for the intermediate type, assuming a linear function.

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[1]Stinson and Johnson, pp. 247-52. [2]Downey et al., pp. 259-62.

FIGURE 4-16

PARTIAL CORRELATIONS BETWEEN
CONSIDERATION AND SATISFACTION CRITERIA

Study	Moderator	Criterion	Organizational Type: Mechanistic	Intermediate	Organic
House & Dessler (A) (1974)	Task Structure	Intrinsic Sat	.52**	.40**	.11[a]
		Extrinsic Sat	.55**	.20	.06[a]
House & Dessler (B) (1974)	Task Structure	Intrinsic Sat	.36	.35	.03
		Extrinsic Sat	.06	.39	-.05
Green (1974)	Task Structure	Intrinsic Sat	.40**	.25	.20
		Extrinsic Sat	.19	.30*	.17
Stinson & Johnson (1975)	Task Structure	Intrinsic Sat	.58**	---	.15[a]
		Sat w/Supvr	.87**	---	.68**[a]
	Task Repetitiveness	Intrinsic Sat	.49**	---	.24
		Sat w/ Supvr	.88**	---	.72**[a]
	Task Autonomy	Intrinsic Sat	.56**	---	.52**
		Sat w/Supvr	.90**	---	.72**[a]
Downey, Sheridan & Slocum (1975)	Task Structure	Sat w/Supvn	.67**	---	.20*[a]

NOTES: a. Significant difference between coefficients for high and low task structure ($p < .05$).

* $p < .05$ ** $p < .01$

Based on the rationales for CS and IS, it seems reasonable to expect that individuals in mechanistic organizations would be predisposed <u>against</u> leaders who displayed high IS behaviors and would want their leaders to display high consideration. Hence, the only acceptable combination of CS and IS behaviors in mechanistic organizations would be the high CS, low IS combination.

FIGURE 4-17

HYPOTHESIZED RELATIONSHIP BETWEEN CSIS AND SAT UNDER THE INFLUENCE OF OT

	Organizational Type		
Leader Behavior	M	I	O
A. Hi CS, Hi IS	LO SAT	Mod SAT	HI SAT
B. Hi CS, Lo IS	HI SAT	Mod SAT	LO SAT
C. Lo CS, Hi IS	LO SAT	LO SAT	LO SAT
D. Lo CS, Lo IS	LO SAT	LO SAT	LO SAT

In the organic type organization, however, any combination of behaviors that was low on IS and/or low on CS would be dissatisfying. Therefore the only satisfying combination of leadership behaviors would be the high CS, high IS one.

Data Analysis

Data analysis is discussed below under the subheadings (1) analysis of organizational type survey data and (2) analysis of the Army's leadership data. The first subheading deals with the analytical approach used to answer the first research question and classify the Army's leadership data by organizational type. The second subheading pertains to the statistical methodology used to answer the second research question.

Analysis of the Organizational Type Survey Data

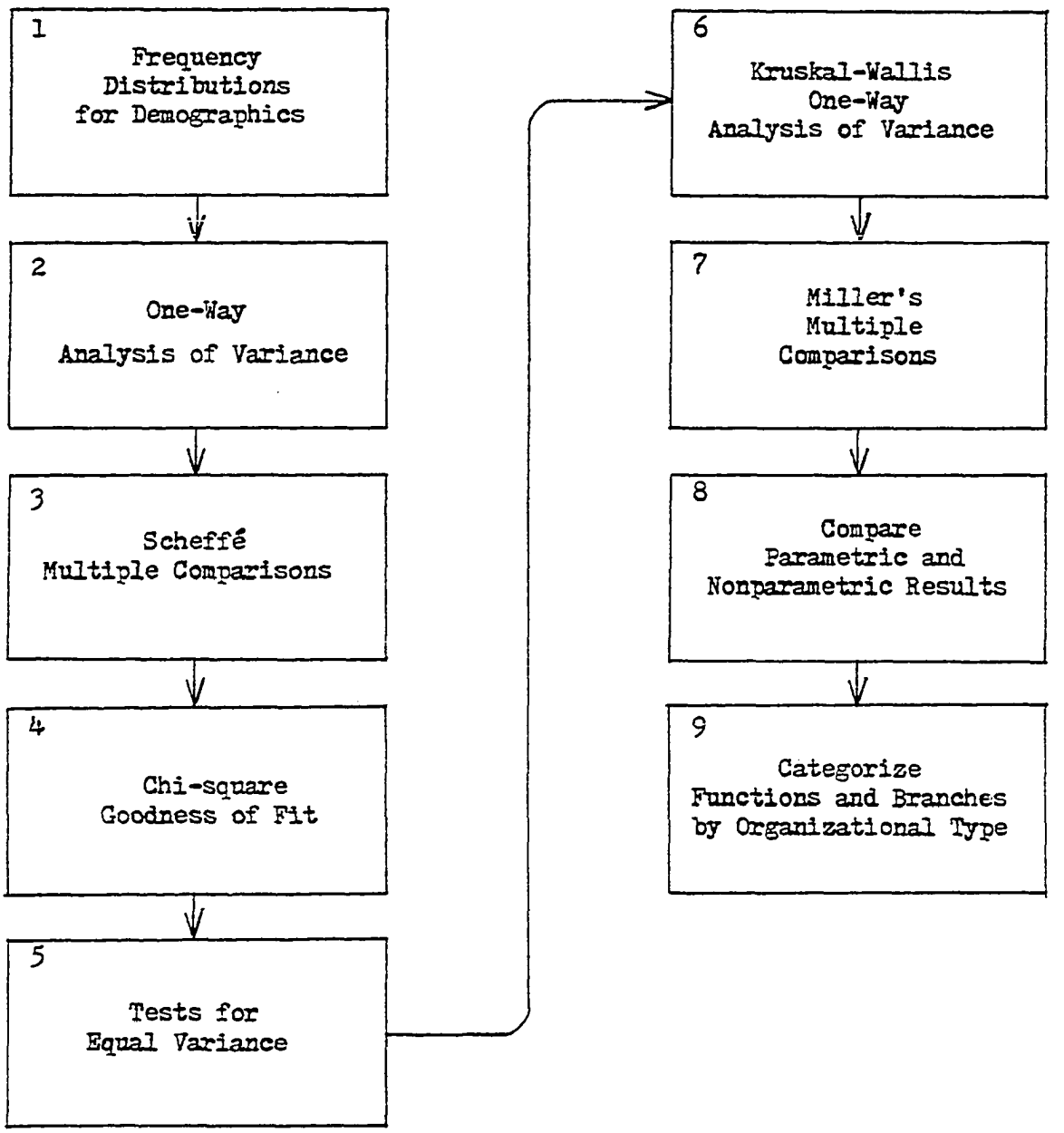
Figure 4-18 summarizes the techniques used to analyze the data produced by the Organizational Function and Branch of Assignment Survey (Appendix E). Identical procedures were followed in analysis of the data for the five functions and nineteen branches.

Frequency distributions provided statistics for describing the sample in terms of age, grade, sex, education, years of active service, and branch of service.

One-way analyses of variance were conducted to answer the first research question by determining if respondent officers at the U. S. Army Administration Center perceived significant differences in the organizational type of the five Army functions and nineteen branches. The relevant null hypotheses that were tested using the one-way analysis of variance were:

FIGURE 4-18

ANALYSIS OF THE ORGANIZATIONAL TYPE SURVEY DATA



$$Ho_a: \quad \bar{X}_{F1} = \bar{X}_{F2} = \ldots \bar{X}_{F5}$$

$$Ho_b: \quad \bar{X}_{B1} = \bar{X}_{B2} = \ldots \bar{X}_{B19}$$

Ho_a hypothesizes that there are no significant differences between the five Army functions with respect to their mean scores on the organizational type scale. Ho_b hypothesizes that there are no significant differences between the nineteen Army branches with respect to their mean scores on the organizational type scale.

The one-way analysis of variance was selected to analyze the data because (1) the technique enables one to test the significance of differences between more than two groups and (2) the technique is a commonly understood and generally accepted tool of the social sciences.[1] There are two disadvantages. First, the analysis of variance statistic, F, indicates only that a relationship does or does not exist. Where differences are indicated, the test does not show the magnitude or strength of the relationship.[2] Second, the technique assumes independent observations, normally distributed populations, equal treatment variance, interval measurement, and " . . . linear combinations of effects due to columns and/or rows."[3]

As shown in Figure 4-18 the data were next subjected to a Scheffé multiple comparison test to determine how, given a significant value of F on the analysis of variance test, the different functions or branches

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[1]Kerlinger, pp. 216-38. [2]Ibid., p. 227.

[3]Sidney Siegel, Nonparametric Statistics (New York: McGraw-Hill Book Co., 1956), p. 19.

varied. The Scheffé test was chosen over various alternatives because it is a very conservative and exact test, useful for exploratory research, and because it " . . . is appropriate for examining all possible linear combinations of group means, not just pairwise comparisons."[1] A disadvantage is that if the F test is not significant, the Scheffé test will yield no additional information about the data.[2]

To establish the validity of the one-way analysis of variance and multiple comparison tests, the data were subjected to Chi-square "goodness of fit" tests and tests for equal variance.[3] The Chi-square test was used to determine whether or not the data were normally distributed; it was chosen principally on the basis of its simplicity and general popularity. The tests for equal variance used were Cochran's C, the Bartlett Box F test, and the Hartley F_{max} test; they were selected on the basis of their availability as computer software by-products of the one-way analysis of variance.[4]

Since the Chi-square "goodness of fit" test indicated that the data were not normally distributed, invalidating the parametric one-way

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[1]Norman H. Nie et al., SPSS: Statistical Package for the Social Sciences, 2d ed. (New York: McGraw-Hill Book Company, 1975), pp. 427-28; Kerlinger, p. 235.

[2]Kerlinger, p. 236.

[3]Frederick E. Croxton and Dudley J. Cowden, Applied General Statistics (Englewood Cliffs, N. J.: Prentice-Hall, 1955), pp. 690-91; Roger E. Kirk, Experimental Design Procedures for the Behavioral Sciences (Belmont, Calif.: Brooks/Cole Publishing Co., 1968), pp. 61-62; and G. E. P. Box, "Non-Normality and Tests on Variances," Biometrika 40 (1953): 318-35.

[4]Nie et al., p. 430.

analysis of variance, hypotheses Ho_a and Ho_b were retested using the Kruskal-Wallis one-way analysis of variance by ranks.[1] The Kruskal-Wallis test was chosen because it is the nonparametric equivalent of the one-way analysis of variance when the number of observations are equal, and because it is more efficient than comparable tests " . . . for deciding whether k independent samples are from different populations."[2] Also, a distribution-free multiple comparison technique has been developed for use with the Kruskal-Wallis test, a technique that is comparable in effect to the parametric Scheffé multiple comparison. That technique, Miller's large sample comparison, was applied to the data to determine which functions (or branches) differed from one another.[3]

As shown at the bottom of Figure 4-18, upon completion of the parametric and nonparametric analyses, the results of the two approaches were compared. Decisions were then made concerning the categorization of the five functions and nineteen branches by organizational type (mechanistic, intermediate, or organic) for subsequent analyses of the Army's leadership data.

Analysis of the the Army's Leadership Data

Figure 4-19 summarizes the techniques used to analyze the relevant research sample selected from the leadership data gathered by the Army in their 1971 study. The analysis will be discussed in terms of (1) factorial

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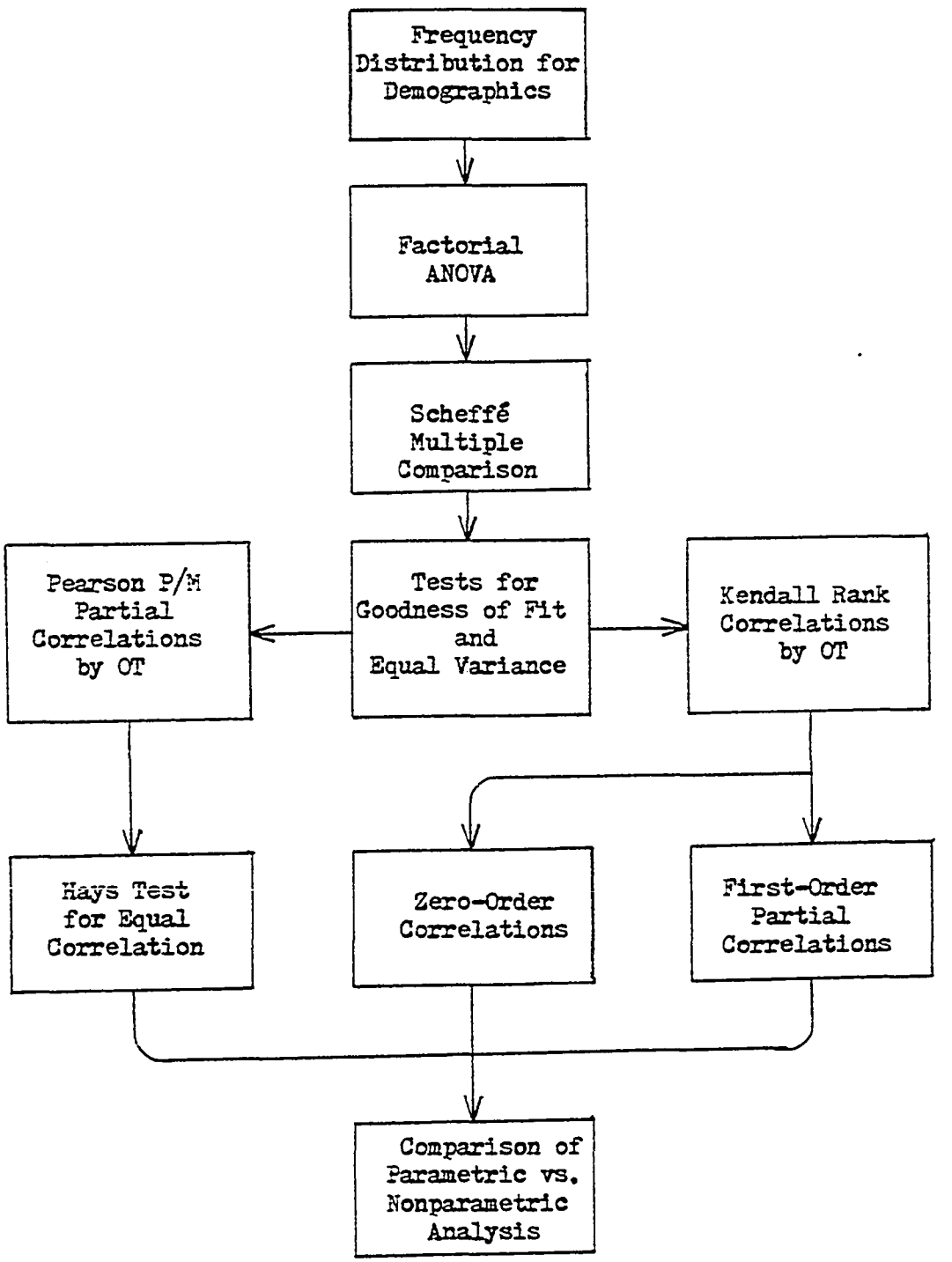
[1]Siegel, p. 184-94. [2]Ibid., p. 184.

[3]Myles Hollander and Douglas A. Wolfe, Nonparametric Statistical Methods (New York: John Wiley & Sons, 1973), pp. 124-25.

FIGURE 4-19

ANALYSIS OF THE ARMY LEADERSHIP DATA



analysis of variance, (2) correlation analysis, (3) parametric versus nonparametric statistics, and (4) nonparametric correlation.

Factorial Analysis of Variance

Factorial analysis of variance was chosen to analyze the data because of the numerous advantages it affords. These advantages are that the technique (1) permits the manipulation and control of two or more variables at one time, (2) permits the control of variables by building them into the research, (3) is more precise than one-way analysis of variance, (4) enables the study of the interactive effects of independent variables on the dependent variable, and (5) allows one to examine the influence of categorical variables (or treatments) on the dependent variables.[1] In effect, factorial analysis of variance makes possible the simultaneous testing of several hypotheses.[2]

Figure 4-20 illustrates the relationships that were examined through factorial analysis of variance with two factors, Factor I (Organizational Type) and Factor II (CSIS). The relevant null hypotheses that were tested are:

Ho_1: $\bar{X}_M = \bar{X}_I = \bar{X}_O$

Ho_2: $\bar{X}_A = \bar{X}_B = \bar{X}_C = \bar{X}_D$

Ho_3: $\bar{X}_{MA} = \bar{X}_{IA} = \bar{X}_{OA} = \bar{X}_{MB} = \bar{X}_{IB} = \bar{X}_{OB} = \bar{X}_{MC} = \bar{X}_{IC} = \bar{X}_{OC} = \bar{X}_{MD} = \bar{X}_{ID} = \bar{X}_{OD}$

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[1] Kerlinger, pp. 257-58. [2] Ibid., p. 243.

FIGURE 4-20

FACTORIAL ANALYSIS OF VARIANCE

	FACTOR I (Organizational Type)											
	Mechanistic (M)				Intermediate (I)				Organic (O)			
FACTOR II (CSIS)	A	B	C	D	A	B	C	D	A	B	C	D
	$X_{1,1}$	$X_{1,2}$	$X_{1,3}$	$X_{1,4}$	$X_{1,5}$	$X_{1,6}$	$X_{1,7}$	$X_{1,8}$	$X_{1,9}$	$X_{1,10}$	$X_{1,11}$	$X_{1,12}$
	.	.	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.	.	.
	.	.	.	.	.	.	.	.	.	.	.	.
	$X_{k,1}$	$X_{m,2}$	$X_{n,3}$	$X_{o,4}$	$X_{p,5}$	$X_{q,6}$	$X_{r,7}$	$X_{s,8}$	$X_{t,9}$	$X_{u,10}$	$X_{v,11}$	$X_{w,12}$

Ho_1 hypothesizes that there is no significant influence of the factor Organizational Type (OT) on the dependent variable Satisfaction with Leader Performance (SAT). Ho_2 hypothesizes no significant influence of the factor CSIS, and Ho_3 hypothesizes no significant interactions between the two main factors OT and CSIS with respect to the dependent variable. Figure 4-20 suggests that the number of observations in each cell differs, that is, $k \neq m \neq n \ldots \neq w$.

Thus, factorial analysis of variance facilitates a test of the effect of two categorical variables, Organizational Type (OT) and CSIS, on the dependent variable SAT. OT has three levels, Mechanistic, Intermediate and Organic. The CSIS variable has four levels; high CS and high IS (A), high CS and low IS (B), low CS and high IS (C), and low CS and low IS, (D). The factorial design permitted a test for <u>direct</u> effects of Organizational Type (a main effect) and for <u>direct</u> effects of CSIS (a second main effect) on the dependent variable. If, for example, a significant ($p < .05$) value of F was obtained for the main OT effect, it would suggest that organizational type was directly affecting subordinate satisfaction with leadership; similarly for the main effect of CSIS.

The <u>factorial analysis</u> of variance technique also made possible the test for the <u>interactive</u> effects of OT and CSIS on SAT. If a significant ($p < .05$) F value was obtained for this interactive affect, it would suggest that OT did, indeed, have a moderating effect on the relationship between leader behavior and subordinate satisfaction with leader performance. Where significant F values were obtained for main effects, the means were further investigated to determine how they differed. The technique

used was the Scheffé multiple comparison method, a post hoc test chosen over numerous alternative multiple range tests because of its relative strictness and because it is exact, even for unequal group sizes.[1]

There are several disadvantages to the use of the factorial analysis of variance technique. First, a significant F, resulting from an analysis of variance, indicates merely the existence of a relationship; it provides little evidence concerning the strength of the relationship.[2]

Second, Kerlinger suggests that when there are "unequal n's in the cells of a design . . . the orthogonality or independence of the independent variables is impaired."[3] He suggests that methods used to compensate for unequal n's are "awkward and not too satisfactory."[4] Nie and others point out that interpretation of results becomes quite involved under these circumstances, but offer three alternative approaches to solving the problem, (1) the classical experimental approach, (2) the hierarchical approach, and (3) the classic regression approach.[5] Thus, methods to handle this problem have been routinized and the difficulty does not appear sufficient to disqualify the use of the factorial design for this exploratory research. The classic experimental approach for handling unequal n's was used to partition the total sum of squares in this research. This approach was chosen over the alternative hierarchical and regression options

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[1]Norman H. Nie et al., SPSS: Statisical Package for the Social Sciences, 2d ed. (New York: McGraw-Hill Book Co., 1975), pp. 427-28; Kerlinger, p. 235; and Alan L. Edwards, Experimental Design in Psychological Research, 4th ed. (New York: Holt, Rinehart & Winston, 1972), pp. 150-52.

[2]Kerlinger, p. 227. [3]Ibid., p. 268. [4]Ibid.

[5]Nie et al., pp. 405-08.

because it is recommended for situations in which the factors have no known causal order, but where main effects are assumed to be of higher priority than interaction effects.[1] In this research the factors have no known causal order. Since the hypothesis being tested concerns the interaction effects of leader behavior and organizational type on the dependent variable, the assumption that the main effects are of higher priority provides a conservative bias to the analysis.

A more serious disadvantage in using factorial analysis of variance is the violation of the implicit assumptions of parametric statistics about the nature of the data. This will be discussed below in a separate section.

Correlation Analysis

Correlation analysis was also used to test the research hypothesis. It was anticipated that if OT does have a significant influence on the relationship between subordinate satisfaction and leader behavior, then these differences would be reflected by differences in coefficients of correlation between SAT and the two behavioral dimensions under the three levels of OT. The hypothesized relationships are suggested in Figure 4-21. Coefficients used in the analysis are partial coefficients to account for

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[1]Ibid., p. 408.

FIGURE 4-21

PARTIAL CORRELATION COEFFICIENTS FOR SATISFACTION AND LEADER BEHAVIOR VARIABLES UNDER THREE TYPES OF ORGANIZATION

		Organizational Type		
		M	I	O
Leader Behavior	CS	r_{11}^{+++}	r_{12}^{++}	r_{13}^{+}
	IS	r_{21}^{-}	r_{22}^{o}	r_{23}^{+}

\+ Significant, positive coefficients.
\- Significant, negative coefficients.
o No significant correlation.

the fact that the literature shows that the two Ohio State dimensions, CS and IS, are often highly intercorrelated.[1]

Figure 4-21 shows that the correlation coefficient for SAT and CS was expected to be very high, positive, and significant for mechanistic (M) organizations (as indicated by the three "plus" signs); whereas under the organic (O) type, a significant positive, but weaker, relationship was expected (as implied by the single "plus" sign).

[1]Chester A. Schriesheim and Steven Kerr, "Theories and Measures of Leadership: A Critical Appraisal of Current and Future Directions," in Leadership: The Cutting Edge, ed. James G. Hunt and Lars L. Larson (Carbondale, Ill.: Southern Illinois University Press, 1977), pp. 20-21; Ralph M. Stogdill et al., "The Leader Behavior of Presidents of Labor Unions," Personnel Psychology 17 (1964): 52; and Hills, p. 92.

For SAT and IS, a significant, negative relationship was expected for mechanistic organizations, and a significant positive one for organic organizations. Consistent with the assumption of a linear function, Figure 4-21 predicts intermediate levels for both coefficients in intermediate (I) type organizations. The null hypotheses suggested by Figure 4-21 are:

Ho_4: $r_{11} = r_{12} = r_{13}$

Ho_5: $r_{21} = r_{22} = r_{23}$

Hays' method was used in one-tailed tests to determine whether there were significant differences between correlation coefficients for the three levels of OT. The Hays test for equal correlation depends on the assumptions that (1) the correlations are from bivariate normal distributions and (2) that the observations are independent.[1] Both assumptions seem reasonable in this research.

Correlation analysis has an advantage over factorial analysis of variance in that it provides a more direct test of the relationship between two variables. The technique provides an indication of the strength or magnitude of a relationship. Also, there is no problem of unequal numbers of observations, since correlation coefficients are computed for each level of the organizational type variable independently. Then, the significance of differences in coefficients for the various

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[1]William L. Hays, Statistics for Psychologists (New York: Holt, Rinehart & Winston, 1963), pp. 529-32.

levels is determined using the Hays technique, which compensates conservatively for the unequal n's.[1]

Like the factorial analysis of variance method and other parametric techniques, correlation analysis requires implicit assumptions about the nature of the data. The next section discusses the problems involved in the violation of those assumptions, and suggests a redundant analysis using nonparametric methods as a remedy.

Parametric Versus Nonparametric Statistics

A more serious problem involved in the application of factorial analysis of variance and correlational analysis concerns the fact that the methods are parametric tests. Siegel lists four assumptions, relating to the nature of the data, that are inherent in most parametric tests. These are "(1) the observations must be independent . . . , (2) the observations must be drawn from normally distributed populations, (3) the populations must have the same variance . . . , and (4) the variables involved must have been measured in at least an interval scale."[2] A fifth assumption, applicable specifically to the analysis of variance technique, is that the means " . . . must be linear combinations of effects due to columns and rows." Siegel acknowledges that if these assumptions are met, parametric tests " . . . are the most likely of all tests to reject HO when HO is false," and should be used.[3] However, he also points out that most measurements in the behavioral sciences are ordinal at best, " . . . are not isomorphic to the numerical system known as arithmetic,"

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[1]Ibid., p. 532. [2]Siegel, p. 19. [3]Ibid.

and are appropriately analyzable only through distribution free, or non-parametric, techniques.[1]

Prior to analysis of the data, there was considerable doubt that the assumptions of parametric tests would hold for the Army's Leadership data. Because the values for the leader behavior variables are mean responses to eleven Consideration items and seven Initiating Structure items, and because the n's are large, the Central Limit theorem applies. Therefore, there is considerable assurance that the CS and IS variables are normally distributed and have stable variances.[2]

But the same rationale does not apply in the case of the dependent variable, Satisfaction with Leader Performance (SAT). Whereas SAT was measured on what is ostensibly an interval scale, the data really do not meet the requirements of the interval scale; particularly the requirement that the distances between any two numbers on the scale be of known size.[3] Unfortunately, the intervals between numbers on the Army's leader behavior scales, like those of the Ohio State LBDQ, depend upon idiosyncrasies of the respondent. One respondent, for example, might describe the universe of leaders within a range of 6 to 7 on one of the dimensions, whereas another respondent might require the full scale range of 1 to 7 to describe the same leaders. Schriesheim and Kerr have cited empirical evidence suggesting that " . . . the psychological distances between the response alternatives [of various Ohio State scales] may be

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[1]Ibid., p. 26. [2]Kerlinger, pp. 207-10. [3]Siegel, p. 26.

very unequal."[1] Also, the assumption of linear combinations of effects may not hold, for little is known about the influence of the independent variables, OT and CSIS, on the dependent variable.

Finally, although the analysis of variance is generally conceded to be a "robust" test (generally insensitive to violations of assumptions), this is not true in an analyses involving unequal n's.[2] Scheffé has demonstrated that " . . . inequality of variances in the cells of a lay-out has little effect on inferences about means if the cell numbers are equal, serious effects with unequal cell numbers."[3] Scheffé also questions the robustness of analysis of variance for unequal variances when the number of treatments is greater than two.[4]

There are reasonable counter-arguments to support the application of parametric techniques to the data. Parametric statistics are acknowledged to have more power than nonparametric tests.[5] Also, parametric statistics are more versatile, as argued by Gaither.[6] Kerlinger's position is that " . . . in most cases in education and psychology, it is probably

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[1]Chester Schriesheim and Steven Kerr, "Psychometric Properties of the Ohio State Leadership Scales," Psychological Bulletin 81 (1974): 762-63.

[2]Henry Scheffé, The Analysis of Variance (New York: John Wiley & Sons, 1959), pp. 331-45.

[3]Ibid., p. 345. [4]Ibid., pp. 354-55.

[5]Siegel, p. 21; Norman Gaither, "The Adoption of Operations Research Techniques by Manufacturing Organizations: A Regional Examination and Analysis " (Ph. D. dissertation, University of Oklahoma, 1974), p. 192; and Kerlinger, p. 287.

[6]Gaither, pp. 193-94.

safer-- and usually more effective-- to use parametric tests rather than nonparametric tests."[1]

A final argument for using parametric techniques pertains to the comparability of research. Were one to rigorously apply Siegel's logic, it would be impossible to treat the data in terms of the Ohio State dimensions of Consideration and Initiating Structure. Because scores on the dependent variable are not interval scale or better, they are not additive, and measures of average CS and average IS behaviors are conceptually unsound. Therefore, leader behavior should be contrasted for different groups only by comparing scores on individual items of the CS and IS scales, or by comparing median values of CS and IS using nonparametric techniques.

But, the findings from such analysis would be considerably less meaningful with respect to the large body of literature that has evolved from the Ohio State studies. The assumption that the dependent variable can be measured on an interval scale is consistent with the published literature involving the two behavioral dimensions. Researchers have traditionally analyzed data derived from the Ohio State scales using parametric statistics and, hence, the factorial analysis of variance approach appears appropriate here.

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[1]Kerlinger, p. 288.

Nonparametric Correlation

In addition to testing the hypothesis through the factorial analysis of variance and correlation methods, nonparametric correlation tests were also conducted. The test selected was the Kendall rank correlation test. The Kendall test was selected for several reasons.

First, the Kendall r (tau) statistic is closely analagous to the Pearson r statistic. Like the Pearson r, tau measures the strength of the relationship between two variables. While the numerical values of the two statistics are not directly comparable, the relative values across the three levels (M, I, and O) of the independent variable OT should be quite similar. Thus, the relationship suggested in Figure 4-21 for the Pearson r should also hold for the Kendall tau. Figure 4-22 illustrates the expected relative values of tau when CS and IS are correlated with SAT for Mechanistic (M), Intermediate (I), and Organic (O) type organizations.

Second, the Kendall tau was used in preference to the popular Spearman rank correlation method because the former " . . . can be generalized to a partial correlation coefficient."[1] Since it is known that CS and IS are often highly correlated, partial coefficients of correlation between the two leader behavior variables and subordinate satisfaction with leader performance are more meaningful than uncorrected coefficients.

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[1]Siegel, p. 214.

FIGURE 4-22

EXPECTED KENDALL RANK CORRELATIONS OF CS AND IS W/SAT FOR THREE LEVELS OF OT

		Organizational Type		
		M	I	O
Leader Behavior	CS	r_{11}^{+++}	r_{12}^{++}	r_{13}^{+}
	IS	r_{21}^{-}	r_{22}^{o}	r_{23}^{+}

\+ Significant, positive coefficients.
\- Significant, negative coefficients.
o No significant correlation.

Third, the Kendall tau is just as "powerful" as the Spearman rho.[1] Finally, according to Nie and associates, " . . . Kendall coefficients are somewhat more meaningful when the data contain a large number of tied ranks," a condition which prevails in the present research.[2]

There are several disadvantages, also. Most important is that the technique does not allow one to test the <u>significance</u> of differences between coefficients for the three levels of organizational type. In other words, there is no nonparametric equivalent of the Hays test for the significance of differences in correlation coefficients. As a result, the evidence with respect to the research hypothesis will be limited to (1)

[1] Siegel, p. 223. [2] Nie et al., p. 298.

determination of the degree of sharing of variance between the leader behavior variables and the satisfaction variable for the three levels of OT as measured by tau, (2) determination of the statistical significance of tau for each of the three levels of OT considered independently, and (3) examination of the relative absolute values of tau and comparison of those values to values of r obtained from the parametric analyses. Thus, the null hypotheses that can be tested, expressed in terms of Figure 4-22, are limited to :

Ho_6: $r_{1j} = 0$, for $j = 1$ to 3.

Ho_7: $r_{2j} = 0$, for $j = 1$ to 3.

A second disadvantage of the Kendall tau is that, although partial coefficients can be calculated, there is no way to test the statistical significance of the partial coefficient.[1] Hence; the hypotheses stated above were tested only through the unadjusted tau. The partial taus were used to compare the relative absolute correlations across the three levels of OT.

Computations

Computations were accomplished on an IBM 370/145 computer. The Statistical Package for the Social Sciences (SPSS) system of computer programs was used for the factorial analysis of variance, the Pearson product-moment correlation analysis, the partial correlation analysis, the Kendall

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[1]Siegel, p. 228.

rank-order correlation analysis, and related statistics. The Frequencies subprogram of SPSS was used to facilitate description of the research sample in terms of demographic variables.

Numerous special purpose Fortran IV programs were written locally to create working files and to accomplish reliability tests of the research instrument. Certain of the analyses (e.g., the Kruskal Wallis test and related multiple comparisons tests on the Organizational Type instrument, and the Hays test for differences in correlations) were accomplished manually.

Research Constraints

A number of research limitations have been alluded to previously, but will be reviewed here, briefly, in order to emphasize the dangers of overgeneralizing the findings of this research to other environments.

In the first place, the research is an ex post facto field study involving analysis of the data gathered by the U. S. Army in relatively uncontrolled circumstances. A number of data collection teams administered the questionnaires under widely varying test environments. Subjects were not selected randomly; hence, there is a question regarding the representativeness of the data, even for the population studied.

Secondly, the questionnaire used by the Army is an untested instrument. Kerlinger warns of the dangers of using untested rating scales, such as those used in the Army study. He suggests that scales should be developed " . . . with painstaking care" and that results should be subjected

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[1]Kerlinger, p. 548.

to " . . . empirical test and adequate statistical analysis."[1] There is no evidence that the Army did either of these things.

It has been shown above that pains have been taken in this research to use only those leader behavior items that could be traced directly to various Ohio State leader behavior instruments. Further, tests of reliability (coefficient alpha and item-total correlations) were conducted on the CS and IS scales to provide some evidence regarding the quality of the derived, composite instrument used in this study. Nevertheless, the reader is reminded of the research findings of Schriesheim and Kerr pertaining to the incomparability of the various Ohio State leader behavior instruments.[2] Hence, the findings should be interpreted cautiously.

Similar problems exist with respect to the instrument used to measure the organizational type of various Army functions and branches. The OT instrument is untested and the data were not randomly collected. The fact that the data were collected at a single installation in which Adjutant General and Finance Corps officers predominate probably biased the results to some extent. Also, the limited military experience of some of the younger officers sampled taxed their abilities to respond accurately to all elements of the questionnaire. For example, it would be highly improbable that many of them had been exposed to the environment of a unit performing research functions.

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[1]Kerlinger, p. 548.

[2]Schriesheim and Kerr, "Theories and Measures," p. 19.

Another limitation of the research concerns the fact that the Army's Leadership Study was a cross-sectional study based on what Korman has described as the "concurrent validity paradigm."[1] Concurrent validity studies analyze the relationships between " . . . predictor and criterion measures collected at the same point in time." Interpretations from such studies, says Korman, " . . . are frequently ambiguous at best."[2] The danger, of course, is that the researcher may impute causal relationships to the findings of his cross-sectional study when there is no basis for such conclusions. Nevertheless, concurrent validity studies do have research value. As Kerlinger has pointed out:

> . . . causal notions . . . are not necessary to scientific work. Evidence <u>can</u> be brought to bear on the empirical validity of conditional statements of the 'If p, then q' kind, alternative hypotheses can be tested, and probabilistic statements can be made about p and q--and other p's and q's and conditions r, s, and t. Invocation of the word 'cause' and the expression 'causal relation' does nothing really constructive. Indeed, it can be misleading.[3]

There are other important limitations that should be noted. One is that the data are relatively old. The Army gathered the data in 1971 while the Vietnam War was winding down. Because conditions in the Army have, no doubt, changed considerably since 1971, the danger in generalizing the findings to the present is considerable.

The research is limited, also, with respect to the measurement of organizational effectiveness. This has been discussed in detail earlier.

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[1]Korman, "Managerial Performance," pp. 295-96.

[2]Ibid. [3]Kerlinger, p. 393.

But, the fact that the Army's data bank provides only a single criterion of leadership effectiveness severely limits the evidence that can be provided in the research in answer to the research question. The ideal research design would, of course, provide for "multiple criteria of leadership effectiveness."[1]

Summary

In this Chapter, the research was described as an exploratory ex post facto field study designed to determine if organizational type (mechanistic, intermediate or organic) influenced the relationship between leader behavior and effectiveness. The data examined were a subsample selected from the U. S. Army Leadership Study data bank. The subsample focused on officer subordinates of field grade officers.

The research design was described and the method for determining organization type was explained in detail. A questionnaire was developed to obtain Army officers' perceptions of the organizational type of (1) five functional missions of the Army and (2) nineteen specialized branches of the Army. The questionnaire was administered to a group of officers at the U. S. Army Administration Center. The responses were used to categorize cases of the selected Army data bank subsample by organizational type: mechanistic, intermediate, or organic. Then, the research subsample from the Army data bank was analyzed to see if organizational type influenced

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[1]Edwin A. Fleishman, "An Overview," in Current Developments in the Study of Leadership, ed. Edwin A. Fleishman and James G. Hunt (Carbondale, Ill.: Southern Illinois University Press, 1973), p. 183.

the relationship between leader behavior and organizational effectiveness. The analysis was accomplished using different approaches; first with organizational type determined according to the functional mission of the respondent's unit, and second, with organization type determined according to the respondent's branch of assignment.

Operational definitions were provided for all variables studied in the research. A broad research hypothesis was stated which reflected the researcher's a priori expectations about how organizational type would influence the relation between leader behavior and the subordinate's satisfaction with his leader's performance. These expectations were explained in terms of the findings of Path-Goal research.

The methods of data analysis were explained and justified in the Chapter. Because of the nature of the data, both parametric and nonparametric techniques were applied to the data.

A number of research limitations were discussed including (1) the usual limitations of ex post facto research, (2) the use of un-tested instruments, (3) the cross-sectional nature of the study, (4) the age of the Army's data, and (5) the use of but a single criterion of leader effectiveness. Though the research limitations are serious, they have been given careful consideration in interpreting the findings.

The next chapter, Chapter V, presents the research findings.

CHAPTER V

FINDINGS

Introduction

The research findings are discussed in this Chapter in four major sections. The first section deals with the findings relevant to the first research question based on the researcher's survey of officers at the U. S. Army Administration Center, Fort Benjamin Harrison, Indiana. The second major section reports findings bearing on the second research question, based on the U. S. Army's 1971 leadership study. The third section describes analyses of the Army's data to ascertain the adequacy of the derived leader behavior scales, and to examine the possible impact of deleted cases on the research findings. A summary of the research findings is presented in the final section of the Chapter.

Findings Relevant to the First Research Question

To answer the first research question, i.e., Does the Army embrace a range of organizational types?, sixty Organizational Function and Branch of Assignment questionnaires (Appendix D) were distributed to selected Army officers at Fort Benjamin Harrison, Indiana by members of the U. S. Army Administration Center. The purpose of the survey was to ascertain officers' perceptions of the organizational type of five Army functions

and nineteen Army branches. Forty-eight questionnaires were returned, of which forty were considered to be useable. Eight questionnaires were discarded because of incompleteness and/or because of dual responses on one or more items.

Demographic Characteristics of the Sample

Demographic characteristics of the survey sample are summarized in Table 5-1 below. The survey sample is not representative of the population of U. S. Army officers in the grades second lieutenant to colonel. Over half of the responses are from officers of the Adjutant General Corps and only 9 out of 19 branches are represented. Conspicuous by their absence are technical service (Ordnance, Quartermaster, etc.) and combat support (Engineer, Signal, etc.) branches. The sample appears unrepresentative, also, from the standpoint of education and length of active service. All respondents were college graduates, while 15 held master's degrees and 2 held doctoral degrees. The zero to five years active service group is underrepresented and the five to ten years group is overrepresented in comparison with a sample of officers from the Army leadership data bank.

Organizational Type Based on Function

Data from the Organizational Function and Branch of Assignment Survey (Appendix D) were subjected to a one-way analysis of variance to determine if the sample of officers perceived differences in the organizational type of five Army functions--administration, combat, education

TABLE 5-1

DEMOGRAPHIC CHARACTERISTICS
(ORGANIZATIONAL TYPE SURVEY)

Characteristic	Number of Respondents (N=40)	Proportion of Sample
1. Age		
22-28	12	.300
29-35	13	.325
36-45	13	.325
Over 45	2	.050
2. Grade		
First Lieutenant	2	.050
Captain	19	.475
Major	11	.275
Lieutenant Colonel	7	.175
Colonel	1	.025
3. Sex		
Male	37	.925
Female	3	.075
4. Education		
Graduated from college	20	.500
Master's degree or higher	20	.500
5. Years Active Service		
Over 2, Under 5	4	.100
Over 5, Under 10	17	.425
Over 10, Under 20	14	.350
Over 20	5	.125
6. Branch of Service		
Air Defense Artillery	1	.025
Adjutant General Corps	21	.525
Armor	1	.025
Chaplain Corps	1	.025
Field Artillery	1	.025
Finance Corps	4	.100
Infantry	6	.150
Medical Service Corps	3	.075
Woman's Army Corps	1	.025
Unreported	1	.025

and training, logistics, and research.[1] The results are shown in Table 5-2. The significant F test provides evidence that the sample

TABLE 5-2

ORGANIZATIONAL TYPE BASED ON FUNCTION
ONE-WAY ANALYSIS OF VARIANCE

Source	d.f.	SS	MS	F
Between Groups	4	123.5	30.9	11.15*
Within Groups	195	539.6	2.8	
Total	199	663.1		

*$p < .001$

of forty officers perceived real differences in the organizational types of five functional areas of the Army.

A post hoc Scheffé multiple comparison test was conducted ($\alpha = .05$) in order to determine how the functional areas were perceived to differ.[2] The results are shown in Table 5-3. The table lists the more organic functions at the top and the more mechanistic functions at the bottom. The Scheffé analysis suggests that respondents perceived the research function

[1]Nie et al., pp. 398-405; 422-33.

[2]Ibid., pp. 427-28; Edwards, pp. 150-52; and Thomas W. Wonnacott and Ronald J. Wonnacott, Introductory Statistics, 2d ed. (John Wiley & Sons, 1972), pp. 224-27.

as constituting one homogeneous subset which is significantly more organic than any of the other functions. No statistically significant differences were perceived between the other four functions, suggesting that education and training, combat, administration, and logistics constitute a second, more mechanistic homogeneous subset of organizational functions.

TABLE 5-3

ORGANIZATIONAL TYPE BASED ON FUNCTION
SCHEFFE' MULTIPLE RANGE TEST

Function	Mean Score	Homogeneous Subsets
Research	4.925	NS*
Education & Training	3.400	NS*
Combat	3.275	
Administration	2.825	
Logistics	2.750	

*No significant differences in mean scores at the .05 level.

Application of a Chi square "goodness of fit" test suggests that the data from the survey sample are <u>not</u> normally distributed (Chi square = 23.86 for 5 degrees of freedom, $p < .001$).[1]

[1]Croxton and Cowden, pp. 690-91.

The data were also examined for heterogeneity of variance, even though it is known that the three tests used are sensitive to departures from normality.[1] Table 5-4 shows that statistics for the Bartlett-Box F and Hartley F_{max} tests approach significance at the .05 level, an indication that perhaps the variances for the five functions are unequal. Because of the significant Chi square, the data were reanalyzed using nonparametric methodology.

The nonparametric method chosen for further analysis was the Kruskal-Wallis one-way analysis of variance by ranks.[2] The Kruskal-

TABLE 5-4

ORGANIZATIONAL TYPE BASED ON FUNCTION
TESTS FOR HOMOGENEITY OF VARIANCE

Test	Value	P
Cochran's C (Max Variance/Σ of Variances)	.255	.370 (approx)
Bartlett-Box F	2.199	.066
Hartley F_{max} (Max Variance/Min Variance)	2.313	.067 (approx)

Wallis test is comparable to the parametric one-way analysis of variance in that it is used to determine " . . . whether k independent samples

[1]Kirk, pp. 61-62; and Box, pp. 318-35.

[2]Siegel, pp. 184-93; and Hollander and Wolfe, pp. 115-20.

are from different populations."[1] A particular advantage of the Kruskal-Wallis test is that distribution-free multiple comparison tests are available, one of which, the Miller large sample approximation, was used here.[2]

Application of the Kruskal-Wallis one-way analysis of variance by ranks (large sample approximation adjusted for ties) yielded the test statistic H = 31.78. The probability of obtaining such a large value of H by chance is less than .001, suggesting that the sample of officers did, in fact, perceive the Army as embracing a range of organizational types, when organizational type is based on function.

The distribution-free multiple comparison test (based on Kruskal-Wallis) was applied to the data, providing the information shown in Table 5-5. The table lists the more organic functions at the top and the more mechanistic functions at the bottom. With a level of significance of .05, the five functions are divided by the treatment into two homogeneous subsets, one consisting solely of the research function and the other consisting of the remaining four functions. In the group of four, the difference in the average rank of any two functions is not significant at the .05 level. The findings for the nonparametric multiple comparison test coincide with the findings for the parametric Scheffé test. These findings provide further justification for dichotomizing the research sample, with cases in research organizations classified as organic and cases in the other four functions classified as mechanistic.

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[1]Siegel, p. 184.

[2]Hollander and Wolfe, pp. 124-25; and Rupert G. Miller, Jr., Simultaneous Statistical Inference (New York: McGraw-Hill Book Co., 1966), pp. 166-67.

TABLE 5-5

ORGANIZATIONAL TYPE BASED ON FUNCTION
DISTRIBUTION-FREE MULTIPLE-COMPARISON
(MILLER'S LARGE SAMPLE APPROXIMATION)

Function	Sum of Ranks (Rj)	Average Rank (Rj/40)	Homogeneous Subsets
Research	5748	143.7	NS*
Education & Training	3989	99.7	NS*
Combat	3831	95.8	
Logistics	3272	81.8	
Administration	3261	81.5	

*No significant differences in average ranks at the .05 level. Significant range for $\alpha = .05$:

$$q(\alpha, k, \infty)\left[\frac{k(kn+1)}{12}\right]^{\frac{1}{2}} = 35.3$$

However, although there is no statistical justification for doing so, it was arbitrarily decided to divide the four more mechanistic functions into intermediate and mechanistic subgroups, consistent with average rank scores. Such a break-out isolates the extreme rankings from mid-range rankings and makes it possible to allocate some cases to each of three segments of a mechanistic-organic continuum. The method facilitates exploration of the potential effect of organizational type on subordinate satisfaction with leader performance. Figure 5-1 shows (1) the resulting classification of functions by organizational type, (2) the average rank

FIGURE 5-1

CLASSIFICATION OF FUNCTIONS BY ORGANIZATIONAL TYPE

Mechanistic			Intermediate			Organic		
Function	Rank	A Priori Expectations	Function	Rank	A Priori Expectations	Function	Rank	A Priori Expectations
Administration	81.5	Intermediate	Combat	95.8	Mechanistic	Research	143.7	Organic
Logistics	81.8	Intermediate	Ed. & Trng.	99.7	Intermediate			

of each function based on the Kruskal-Wallis analysis, and (3) the researcher's a priori expectations regarding the organizational type of each function.

A major surprise of the findings is the relatively high ranking of the combat function with respect to administration and logistics, although the difference is not statistically significant. As shown by the column labeled "A Priori Expectations," combat had been expected to be perceived as mechanistic (M), whereas administration and logistics were expected to be perceived as intermediate (I).

The next section examines the findings concerning the determination of organizational type based on branch.

Organizational Type based on Branch

Data from the Organizational Function and Branch of Assignment Survey were subjected to a one-way analysis of variance to determine if the sample of officers perceived differences in the organizational type of nineteen branches of the Army.[1] The results are shown in Table 5-6.

The significant F test suggests that the sample of officers did, indeed, perceive differences in the organizational types of the nineteen branches.

In order to determine how the branches were perceived to differ, a post hoc Scheffé multiple comparison test was conducted for $\alpha = .05$.[2]

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[1]Nie et al., pp. 398-405; 422-33.

[2]Ibid., pp. 427-28; Edwards, pp. 150-152; and Wonnacott and Wonnacott, pp. 224-27.

TABLE 5-6

ORGANIZATIONAL TYPE BASED ON BRANCH
ONE-WAY ANALYSIS OF VARIANCE

Source	d.f.	SS	MS	F
Between Groups	18	458.4	25.5	9.78*
Within Groups	741	1930.3	2.6	
Total	759	2388.7		

*$p < .001$

The results are shown in Table 5-7. The table lists the more organic branches at the top and the more mechanistic branches at the bottom. The Scheffé test identified three statistically homogeneous subsets, in which the difference between the means of any two branches in the subset is not significant at the .05 level. Because the subsets are overlapping, the Scheffé test does not suggest a precise method for classifying the various branches into organic, intermediate, and mechanistic organizational types.

However, application of a Chi-square "goodness of fit" test suggested that the sample is not from a normal population (Chi-square = 48.81 for 5 degrees of freedom; $p < .001$).[1] Also statistics for homogeneity of variances were provided as by-products of the SPSS One-Way

[1]Croxton and Cowden, pp. 690-91.

TABLE 5-7

ORGANIZATIONAL TYPE BASED ON BRANCH
SCHEFFÉ MULTIPLE RANGE TEST

Branch	Mean Score	Homogeneous Subsets
Chap	5.650	
MC	4.900	
MI	4.875	NS*
MSC	4.600	
JAG	4.500	
WAC	3.775	
SIG	3.700	
CHEM	3.700	
TRANS	3.550	
AGC	3.425	NS*
QMC	3.350	NS*
ORD	3.350	
ENG	3.350	
ARMOR	3.300	
INF	3.275	
MPC	3.075	
ADA	2.975	
FA	2.875	
FIN	2.700	

*No significant differences in mean scores at the .05 level.

program, with results as shown in Table 5-8.[1] Though the tests for homogeneity are, themselves, sensitive to departures from normality, these findings suggest that the normal assumptions of parametric methods may not hold, (i.e., the data are not normally distributed and the homogeneity of variance is questionable). Therefore, data were reanalyzed using non-parametric methods.

TABLE 5-8

ORGANIZATIONAL TYPE BASED ON BRANCH
TESTS FOR HOMOGENEITY OF VARIANCE

Test	Value	P
Cochran's C (Max Variance/Σ of Variances)	.084	p = .160 (Approx)
Bartlett-Box F	3.073	p = .000
Hartley F_{max}(Max Variance/ Min Variance	3.374	p = .080 (Approx)

Application of the Kruskal-Wallis test, using the large sample approximation adjusted for ties, yielded the statistic H = 130.9.[2] The probability of obtaining an H as large as 130.9 by chance is less than .001. This finding provides strong evidence that Army officers did perceive the Army as embracing a range of organizational types, when organizational type is based on branch.

Results of the distribution-free multiple comparison test (based on Kruskal-Wallis) are shown in Table 5-9. The table lists the more

[1]Kirk, pp. 61-62.

[2]Siegel, pp. 184-93; and Hollander and Wolfe, pp. 115-20.

TABLE 5-9

ORGANIZATIONAL TYPE BASED ON BRANCH
DISTRIBUTION-FREE MULTIPLE COMPARISONS
(MILLER'S LARGE SAMPLE APPROXIMATION)

Branch	Sum of Ranks (Rj)	Avg Rank (Rj/40)	Homogeneous Subsets
Chap	23342	584	
MI	20631	516	
MC	20338	508	NS*
MSC	19504	488	
JAG	18757	469	
SIG	15723	393	NS*
WAC	15659	392	NS*
CHEM	15554	389	
TRANS	14806	370	NS*
ENG	13852	346	NS*
QMC	13753	344	
ORD	13591	340	NS*
AGC	13338	333	
ARMOR	13123	328	
INF	12919	323	
MPC	12140	304	
ADA	11561	289	
FA	10850	271	
FIN	9745	244	

*No significant differences in average ranks, where the significant range for $\alpha = .05$ is:

$$q\,(\alpha, k, \infty) \left[\frac{k\,(kn + 1)}{12}\right]^{\frac{1}{2}} = 172.7$$

organic branches at the top and the more mechanistic branches at the bottom. With a level of significance of .05, the nineteen branches are divided into six homogeneous subsets (shown on the right-hand side of the table), where the difference in the average rank of any two branches in a given subset is not significant at the .05 level. Although the number of groupings obtained through the nonparametric analysis were quite different from those obtained from the Scheffé test (six homogeneous groups for the former; three for the latter), the results were substantially the same. The most organic group resulting from the Scheffé test consisted of six branches (Table 5-7); the most organic group resulting from the Miller nonparametric test consisted of the same branches except that the Woman's Army Corps (WAC) was excluded. There were only minor differences in the relative ranking of branches. A similar outcome is noticeable with respect to the most mechanistic group.

As a result of the above analysis it was decided to classify as organic those cases in which the respondent identified himself as being a member of the Chaplain, Military Intelligence, Medical Corps, Medical Service Corps, or Judge Advocate General Corps branches. These branches constituted the most organic homogeneous subset of the groups emerging from the nonparametric multiple comparison.

Unfortunately, the remaining fourteen branches comprised a single homogeneous subset, and there is no statistical justification for further subdivision. Consequently, it was decided to arbitrarily subdivide the remaining branches into intermediate and mechanistic types. Such arbitrary action appeared appropriate in order to isolate extreme rankings

from mid-range rankings and allocate some cases to each of the three segments of the organizational type continuum. The method facilitates exploration of the potential effect of organizational type on subordinate satisfaction with leader performance. Implicit in this action is the assumption that the Army encompasses the full range of organizational types, mechanistic to organic.

Accordingly, the dividing line between intermediate and mechanistic organizational types was chosen so as to concentrate combat and administrative service branches into the mechanistic group and technical services branches into the intermediate groups, while adhering to average rank as the fundamental basis for classification.

Figure 5-2 shows (1) the resulting classification of branches by organizational type, (2) the average rank of each branch based on the Kruskal-Wallis analysis, and (3) the researcher's a priori expectations regarding the organizational type of each branch. The mechanistic group consists largely of combat and administrative service branches, the intermediate group is dominated by the technical services, and the organic group consists principally of the professional branches; Chaplain, Medical, and Judge Advocate.

The combat service branches -- Military Police, Engineer, Signal, and Military Intelligence -- are distributed across the full range of organizational types. The relative congruence of the findings with the researcher's a priori expectations is due, in large part, to the arbitrary dividing line between the mechanistic and intermediate groups.

FIGURE 5-2

CLASSIFICATION OF BRANCHES BY ORGANIZATIONAL TYPE

Mechanistic			Intermediate			Organic		
Branch	Rank	A Priori Expectation	Branch	Rank	A Priori Expectation	Branch	Rank	A Priori Expectation
Finance	244	Intermediate	Ordnance	340	Intermediate	Judge Advocate	469	Organic
Field Artillery	271	Mechanistic	Quartermaster	344	Intermediate	Medical Service	488	Intermediate
Air Defense Artillery	289	Mechanistic	Engineers	346	Intermediate	Medical	508	Organic
Military Police	304	Intermediate	Transportation	370	Intermediate	Military Intelligence	516	Intermediate
Infantry	323	Mechanistic	Chemical	389	Intermediate	Chaplain	584	Organic
Armor	328	Mechanistic	WAC	392	Intermediate			
Adjutant General	333	Intermediate	Signal	393	Intermediate			

However, based on rank order criteria, the relationships are substantially in the relative order predicted.

The next section reports the results of various statistical analyses that were conducted to provide evidence relevant to the second research question.

Findings Relevant to the Second Research Question

To answer the second research question, i.e., Does organizational type have a moderating influence on the relationship between leadership style and organizational effectiveness?, relevant cases--records of officer subordinates of field grade officers--were drawn from the Army's 1971 leadership data bank for analysis. Cases were grouped according to the schemes outlined in Figures 5-1 and 5-2. For each statistical treatment, the cases were grouped first, with organizational type based on function and second, with organizational type based on branch. Reported below are the research sample demographics and results of (1) factorial analyses of variance, (2) bivariate linear correlation analyses, and (3) nonparametric correlation analyses.

Research Sample Demographics

The research sample consisted of 2334 cases. Cases with missing data on key variables (dependent and independent variables) were deleted from the file. This was done to avoid, in the case of the correlation analyses, " . . . producing coefficients which are based on a different number of cases and perhaps on even quite different subpopulations of

the file."[1] Selected demographic information is presented in Appendix F, Demographic Characteristics of the Research Sample (U. S. Army data bank).

Factorial Analyses of Variance

Factorial analyses of variance were conducted to test the null hypotheses that: (1) Ho_1, there is no significant influence of the factor organizational type (OT) on the dependent variable, satisfaction with leader performance (SAT); (2) Ho_2, there is no significant influence of the leader behavior variable, CSIS, on SAT; and (3) Ho_3, there is no significant interaction between OT and CSIS with respect to the dependent variable. The findings relating to these three hypotheses are discussed below: first, with OT based on function, and second, with OT based on branch.

OT Based on Function

Table 5-10 presents the factorial analysis of variance table showing the influence of OT and CSIS on the dependent variable SAT for the research sample.

The results suggest that organizational type has no significant direct effect on a subordinate's satisfaction with his leader's performance. This precludes rejection of the null hypothesis Ho_1. However, F approaches significance at the .10 level ($p = .13$), and examination of

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[1]Nie et al., p. 283.

TABLE 5-10

FACTORIAL ANALYSIS OF VARIANCE
(OT BASED ON FUNCTION)

Source of Variation	Sum of Squares	Degrees of Freedom	Mean Square	F	Significance of F
Main Effects	1911.358	5	382.271	275.40	.001
OT	5.617	2	2.808	2.02	.130
CSIS	1896.951	3	632.317	455.36	.001
Interactions	13.385	6	2.231	1.61	.140
Residual	3056.323	2201	1.389		
Total	4981.066	2212	2.252		

NOTE: The sum of squares for the Main Effects is <u>not</u> equal to the sum of squares for the two factors due to the fact that the number of observations for the various cells is not equal. (See Nie et al., p. 408.)

the table of means for SAT (Table 5-11) provides a hint that the satisfaction of subordinates tends to increase as characteristics of organizations change across the range of the continuum from mechanistic to organic.

TABLE 5-11

MEAN SATISFACTION BY ORGANIZATIONAL TYPE
(OT BASED ON FUNCTION)

Mechanistic		Intermediate		Organic	
n	Mean	n	Mean	n	Mean
507	5.1657	1505	5.3542	201	5.3781

The factorial analysis of variance indicates a strong direct effect of the factor CSIS on satisfaction of subordinates with their leaders' performance (Table 5-10). The probability of obtaining a value of F as large as 455, purely by chance, is less than one in one thousand, strong evidence for rejecting the null hypothesis Ho_2.

The principal finding of the factorial analysis of variance, with OT based on function, however, is the absence of a statistically significant interactive effect of OT and CSIS on the dependent variable, although the value of F approaches significance at the .10 level ($p = .14$). Figure 5-3 is a graph of the interaction effects with mean satisfaction plotted for the three levels of OT and four levels of CSIS (shown on the horizontal axis). Edwards states that where there are no interaction effects, graphs of the dependent variable for the various levels of one factor (independent variable) will be parallel under the influence of the second factor (independent variable).[1] Figure 5-3 suggests that subjects tend to be highly satisfied when CS is high and IS is high, regardless of OT. Similarly, subjects tend to be dissatisfied when both CS and IS are low. Generally, satisfaction is moderate when either one or the other of CS and IS is low. However, whereas individuals in both intermediate and organic organizations seem to be indifferent to the relative mix of CS and IS behaviors, the graph subtly suggests that subjects in mechanistic organizations seem to prefer leaders who are high on CS and low on IS to leaders who display the opposite combination of behaviors.

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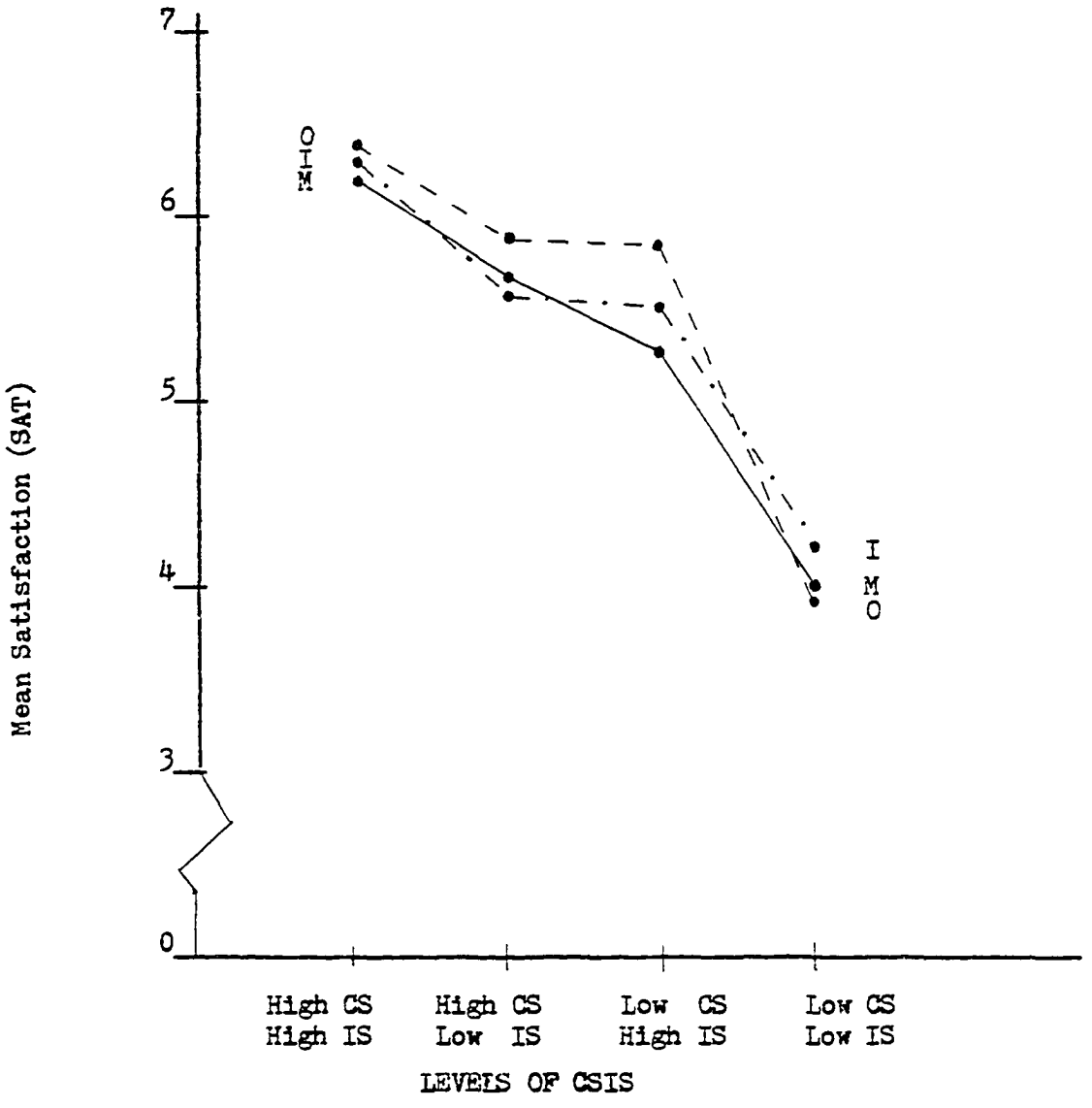
[1]Edwards, pp. 165-67.

FIGURE 5-3

INTERACTION EFFECTS OF OT AND CSIS ON
MEAN SATISFACTION: OT BASED ON FUNCTION



Key:

_____ Mechanistic (M) organizational type

\- - - - - - - - - - Intermediate (I) organizational type

_ _ _ _ _ _ _ _ _ Organic (O) organizational type

Because of the exploratory nature of the research the hypotheses were also tested using a factorial design with OT based on Branch.

OT Based on Branch

Table 5-12 presents the factorial analysis of variance table showing the influence of OT and CSIS on the dependent variable SAT when OT is based on branch.

TABLE 5-12

FACTORIAL ANALYSIS OF VARIANCE
(OT BASED ON BRANCH)

Source of Variation	Sum of Square	Degrees of Freedom	Mean Square	F	Significance of F
Main Effects	1946.599	5	389.320	281.26	.001
OT	1.000	2	.500	361	.999
CSIS	1940.350	3	646.783	467.27	.001
Interactions	11.286	6	1.881	1.36	.227
Residual	3150.396	2276	1.384		
Total	5103.281	2287	2.234		

NOTE: The sum of squares for the Main Effects is not equal to the sum of squares for the two factors due to the fact that the numbers of observations for the various cells are not equal. (See Nie et al., p. 408.)

The table indicates that organizational type has no significant direct effect on a subordinate's satisfaction with his leader's performance. Furthermore, examination of the table of means (Table 5-13) shows an opposite trend from that obtained when OT is determined by function.

TABLE 5-13

MEAN SATISFACTION BY ORGANIZATIONAL TYPE
(OT BASED ON BRANCH)

Mechanistic		Intermediate		Organic	
n	Mean	n	Mean	n	Mean
1287	5.353	654	5.298	347	5.205

Here, the very weak evidence suggests that the satisfaction of subordinates tends to decrease as the characteristics of organizations change across the range of the continuum from mechanistic to organic. However, no support is provided for rejecting the null hypothesis Ho_1.

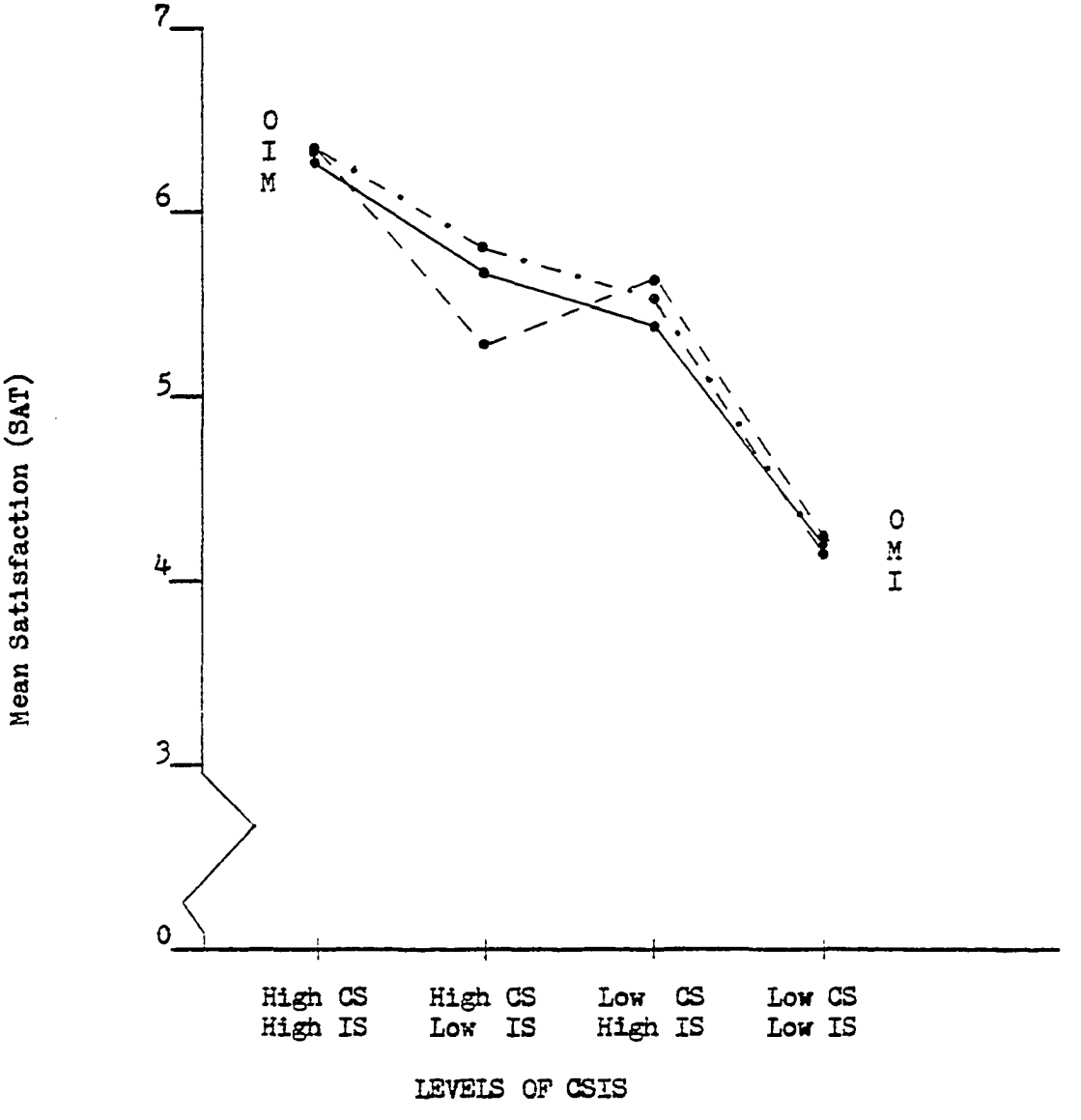
The factorial analysis of variance does, however, indicate a strong direct effect of the factor CSIS on satisfaction of subordinates with their leaders' performance (Table 5-12). Again, the probability of getting such a large value of F (F = 467) by chance is less than one out of one thousand, further evidence in support of rejecting the null hypothesis Ho_2.

Table 5-12 shows no significant interaction effect between OT and CSIS. This finding adds to the evidence favoring the null hypothesis Ho_3.

Despite the absence of a significant interaction, SAT is plotted for the three levels of OT and four levels of CSIS in Figure 5-4. As was the case for OT based on function, all subjects tend to be highly satisfied when CS is high and IS is high, regardless of OT. Similarly, all subjects tend to be dissatisfied when both CS and IS are low. Generally, satisfaction

FIGURE 5-4

INTERACTION EFFECTS OF OT AND CSIS ON MEAN SATISFACTION: OT BASED ON BRANCH



Key:

Mechanistic (M) organizational type

Intermediate (I) organizational type

Organic (O) organizational type

is moderate when either one or the other of CS and IS is low. Individuals in both mechanistic and intermediate organizations seem to prefer (slightly) leaders who are high on CS and low on IS to those who display the opposite combination. However, Figure 5-4 subtly suggests that subjects in organic organizations prefer (also slightly) leaders who are low on CS and high on IS to those who are high on CS and low on IS.

Scheffé Multiple Comparison Test

In view of the evidence suggesting a powerful effect of the leader behavior variable, CSIS, on subordinate satisfaction (for OT based on function and branch), the data were subjected to a Scheffé Multiple Comparison test with a significance level of .05. The comparisons of mean satisfaction with leader performance, by the four categories of the CSIS variable, produced three homogeneous subsets of groups as shown in Table 5-14. These findings suggest that subordinates are significantly more dissatisfied with the performance of leaders who are perceived as being low on both consideration and initiating structure than with leaders who display any other combination of the two behavioral dimensions. Also, the results indicate that subordinates are significantly more satisfied with the performance of leaders perceived as being high on both consideration and initiating structure. It appears that subordinates are relatively indifferent with respect to high consideration/low initiating structure versus low consideration/high initiating structure leaders, there being no significant difference in subordinate satisfaction for those two groups.

TABLE 5-14

SCHEFFÉ MULTIPLE COMPARISON TEST
MEAN SATISFACTION BY CSIS

Leader Behavior (CSIS)	Number of Cases	Mean Satisfaction	Homogeneous Subsets
Hi CS, Hi IS	857	6.286	NS*
Hi CS, Lo IS	361	5.632	NS*
Lo CS, Hi IS	273	5.454	NS*
Lo CS, Lo IS	843	4.148	

*No significant differences in mean satisfaction at the .05 level.

The next section reports evidence bearing on the research hypotheses based on correlation analysis.

Correlation Analysis

Correlation analysis was used to determine if OT has a significant influence on the relationship between subordinate satisfaction and leader behavior. Differences in partial coefficients of correlation between SAT and the two behavioral dimensions were examined for the three levels of OT: mechanistic, intermediate, and organic. The specific null hypotheses tested by correlation analyses were: (1) HO_4, there are no significant differences between correlation coefficients for leader consideration behavior and subordinate satisfaction with leader performance for mechanistic, intermediate, or organic type organizations, and (2) Ho_5, there are

no significant differences between correlation coefficients for leader initiating structure behavior and subordinate satisfaction with leader performance for mechanistic, intermediate, or organic type organizations. The findings will be discussed first with OT based on function, and then with OT based on branch.

OT Based on Function

Table 5-15 shows the first-order partial correlation coefficients for SAT and the two leader behavior variables for the three levels of OT, with OT based on function. Coefficients for CS and SAT reflect the partialling out of IS and coefficients for IS and SAT reflect the partialling out of CS. High intercorrelations between CS and IS were found, substantiating the use of partial versus zero-order coefficients.[1]

TABLE 5-15

PARTIAL CORRELATION COEFFICIENTS FOR SATISFACTION WITH CS AND IS (OT BASED ON FUNCTION)

Leader Behavior	Organizational Type		
	Mechanistic (n=504)	Intermediate (n=1502)	Organic (n=198)
CS	.4212*	.4207*	.4812*
IS	.3786*	.4034*	.3450*

* $p < .001$

[1]The zero-order correlations between CS and IS were .7055, .6530, and .7008 for mechanistic, intermediate, and organic organizational types respectively.

Consistent with the findings of the factorial analysis of variance, both CS and IS were found to be significantly correlated with SAT ($p < .001$), regardless of organizational type. Application of the Hays test for equal correlation showed no significant differences between any of the partial correlation coefficients shown, suggesting that the null hypotheses, Ho_4 and Ho_5, hold.[1] Furthermore, the a priori expectations concerning the relative magnitude of correlation coefficients under the three types of organizations (Figure 4-18) were not confirmed.

As shown in Figure 5-5a, the partial correlation between satisfaction (SAT) and consideration (CS) was (1) moderately positive in mechanistic orgaizations, (2) approximately the same in intermediate organizations, and (3) slightly higher in organic organizations. Although the researcher's expectations were not expressed in terms of actual numbers (see Figure 4-19), the dashed line of Figure 5-5a represents the general direction and magnitude of those expectations. The actual trend was opposite in direction to what was expected (as shown by the dashed line of Figure 5-5a). This suggests that if there is any influence at all, consideration behaviors are more closely related to subordinate satisfaction in organic organizations than in either intermediate or mechanistic ones.

Figure 5-5b illustrates that the partial correlation between satisfaction (SAT) and initiating structure (IS) was (1) moderately positive in mechanistic organizations, (2) slightly higher in intermediate

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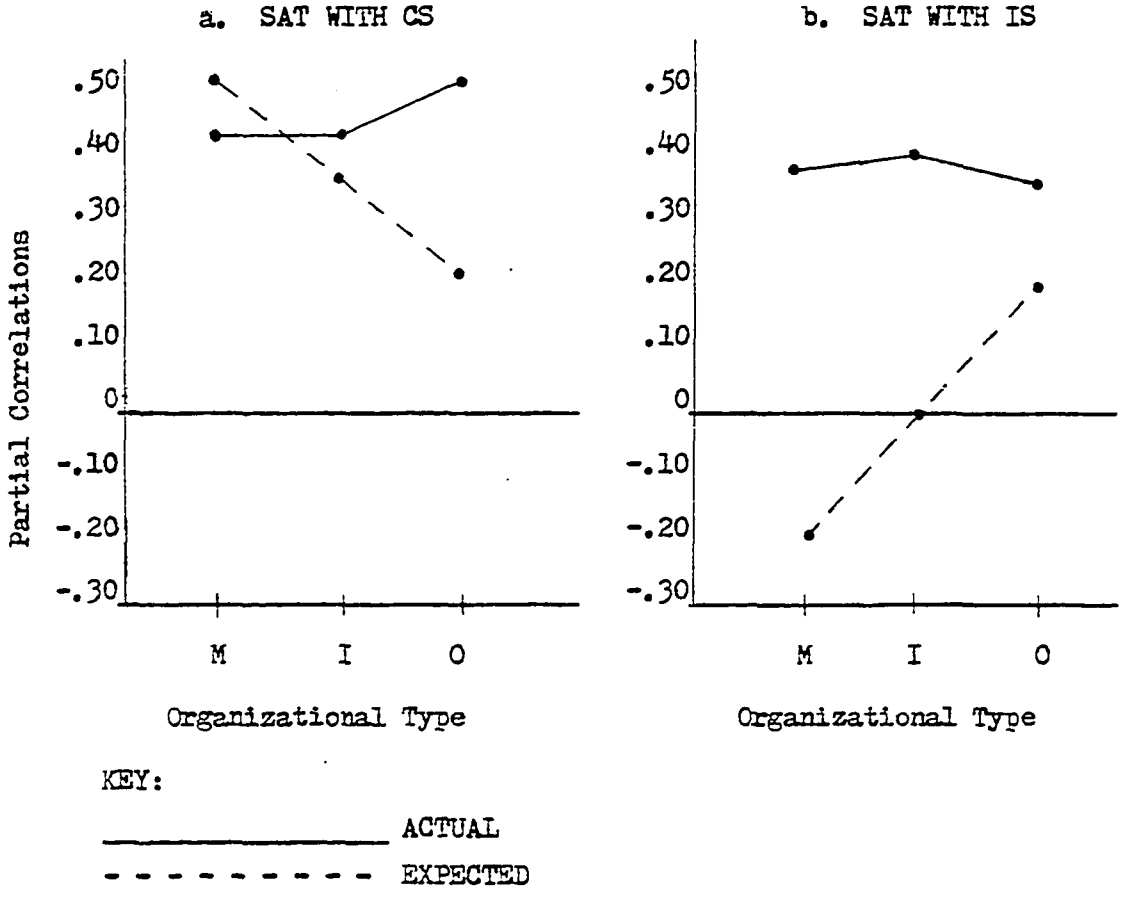
[1]Hays, p. 532.

FIGURE 5-5

GRAPHS OF PARTIAL CORRELATIONS
ACTUAL V. EXPECTED
(OT BASED ON FUNCTION)



organizations, and (3) lowest, but still moderately positive, in organic organizations. This finding, too, is quite different from what was expected (the dashed line of Figure 5-5b): low negative correlation for mechanistic, zero correlation for intermediate, and low positive correlation for organic organizations. The results of the analysis indicate that some degree of initiating structure behavior is important for subordinate

satisfaction regardless of organizational type, but that if there is a moderating influence, initiating structure is most important in the intermediate type organization.

OT Based on Branch

Table 5-16 shows the first-order partial correlation coefficients for SAT and the two leader behavior variables for three levels of OT, with OT based on branch. Coefficients for CS and SAT reflect the partialling out of the effects for IS and coefficients for IS and SAT reflect the partialling out of the effects of CS. High intercorrelations were found between CS and IS, substantiating the use of partial correlation coefficients instead of zero-order coefficients.[1]

Supporting the findings of the factorial analysis of variance, both CS and IS were found to correlate significantly ($p < .001$) with SAT in every case, regardless of organizational type. Application of the Hays test for equal correlation showed (1) a significant difference between the partial correlations of SAT and CS for mechanistic versus organic organizations at the .01 level, (2) a significant difference between the partial correlations of SAT and CS for intermediate versus organic organizations at the .01 level, and (3) a significant difference between the partial correlations of SAT and IS for intermediate versus organic organizations at the .02 level. These findings suggest that the null hypotheses Ho_4 and Ho_5 should be rejected when OT is based on branch.

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[1]The zero-order correlations between CS and IS were .6642, .6676, and .6833 for mechanistic, intermediate, and organic organizational types respectively.

TABLE 5-16

PARTIAL CORRELATION COEFFICIENTS FOR SATISFACTION WITH CS AND IS (OT BASED ON BRANCH)

Leader Behavior	Organizational Type		
	Mechanistic (n=1284)	Intermediate (n=651)	Organic (n=344)
CS	.4566*	.4555*	.2975*
IS	.3999*	.3328*	.4720*

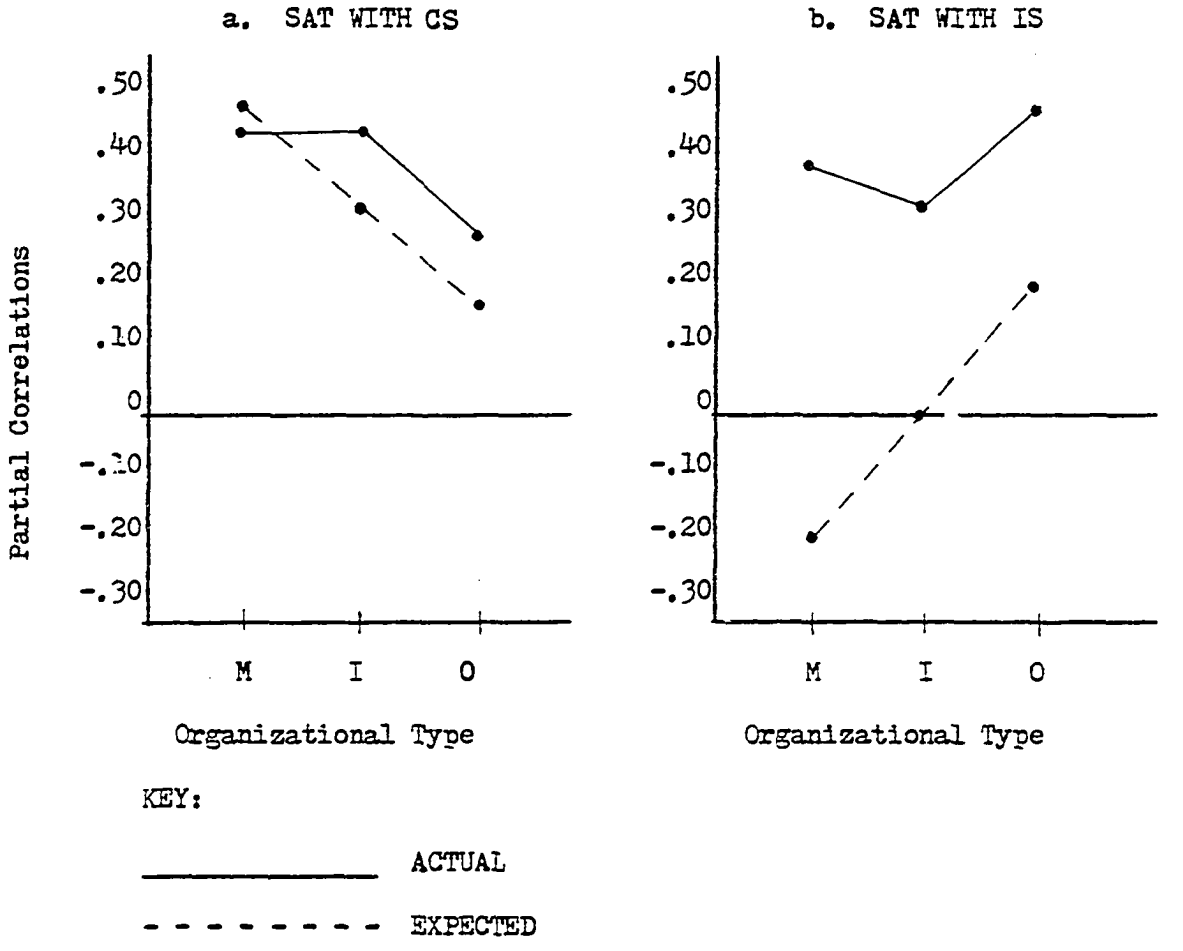
NOTE: Solid line connecting two coefficients indicates significant difference in correlations at the .01 level. Dashed line indicates significant difference at the .02 level.

*$p < .001$

The solid line of Figure 5-6a relates the partial correlations of SAT with CS across the three levels of the independent variable organizational type. Although the researcher's expectations were not expressed in terms of actual numbers (see Figure 4-19), the dashed line of Figure 5-6a represents the general direction and magnitude of those expectations. The findings seem to support the expectation that the correlation of SAT with CS would be relatively high in mechanistic organizations and low in organic ones. Contrary to expectations the correlation between SAT and CS was practically identical for mechanistic and intermediate organizations. The analysis provides strong evidence that considerate leader behavior is

FIGURE 5-6

GRAPHS OF PARTIAL CORRELATIONS
ACTUAL VS. EXPECTED
(OT BASED ON BRANCH)



most important for subordinate satisfaction in mechanistic and intermediate organizations, and significantly less important in organic organizations.

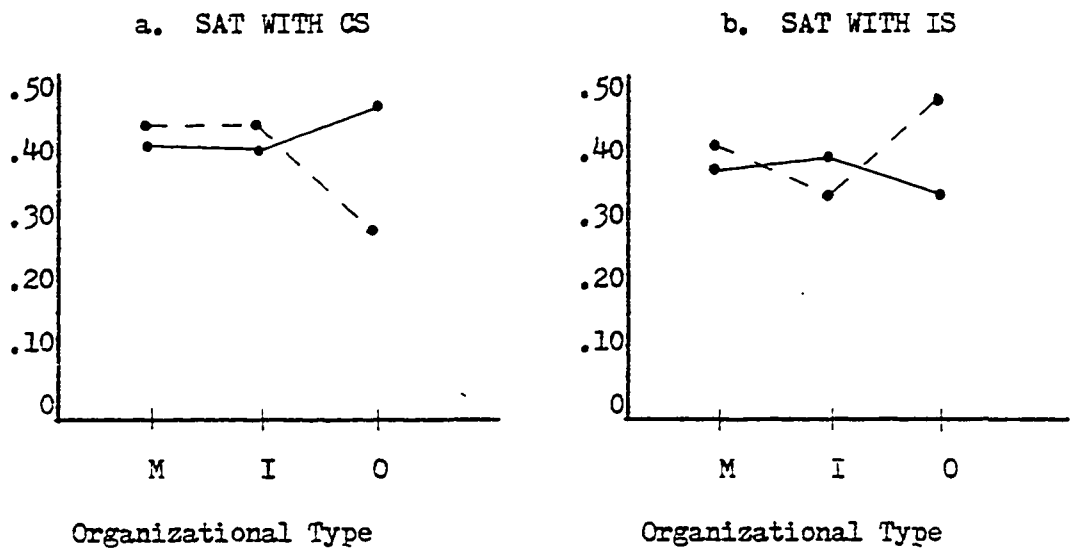
Figure 5-6b illustrates the influence of organizational type on partial correlations of SAT with IS. The solid line represents the research findings; the dashed line represents the researcher's expectations (Figure 4-19). Although the only statistically significant difference was between coefficients for intermediate and organic organizations, the difference between coefficients for mechanistic and intermediate organizations approached significance at the .10 level ($p = .107$). There is strong evidence, therefore, that leader initiating structure is significantly less valued by subordinates in intermediate organizations than by subordinates in organic organizations. Also, the findings hint that subordinates in intermediate type organizations value initiating structure less than subordinates in mechanistic type organizations. The anticipated negative correlation between IS and SAT in mechanistic organizations failed to materialize. Apparently subordinates expect a certain amount of structuring behaviors on the part of their leaders regardless of organizational type.

Comparison of Function and Branch Analyses

Figure 5-7 compares the actual partial correlations for mechanistic, intermediate, and organic organizations when OT is based on function with the actual partial correlations when OT is based on branch. If all of the variables of the research were perfectly operationalized, then organizational type should exert a uniform influence over the leader behavior and satisfaction variables. Except for random variation, the

FIGURE 5-7

GRAPHS OF PARTIAL CORRELATIONS
OT BASED ON FUNCTION VS. OT BASED ON BRANCH



KEY:

_____ Organizational type based on function

- - - - - - - - - Organizational type based on branch

superimposed graphs should be congruent. It is apparent from Figure 5-7 that they are not. The partial correlations between SAT and CS for organic organizations differ substantially depending upon how the organizational type variable is operationalized. On the other hand, the graphs for the mechanistic and intermediate type organizations are reasonably congruent.

With respect to the correlations for SAT and IS, it is evident from Figure 5-7b that the graph for organizational type based on function is convex upward, while the graph for organizational type based on branch is convex downward. The differences between correlations for intermediate

and organic types are substantial. Figure 5-7 suggests that something has confounded the research. Possible meanings of this finding will be discussed in Chapter 6.

The findings discussed above concerning the second research question are based on the usual assumptions of parametric statistics discussed in Chapter IV (normality, homogeneity of variance, etc.) However, application of the Chi-square test of "goodness of fit" indicate that the sample data for the key research variables SAT, CS, and IS are <u>not</u> normally distributed.[1]

Also, although tests of homogeneity are generally considered suspect in the absence of normality, statistics generated as a by-product of one-way analyses of variance suggest that the homogeneity assumption may also be a problem.[2] Table 5-17 provides results of tests for homogeneity of variance of the dependent variable SAT for the various categories of OT and CSIS when tested independently in three one-way analyses of variance.[3] It is evident that the variance of the dependent variable, SAT, may very well be heterogeneous for the different treatment groups. Therefore the evidence based on the preceding parametric analyses should be used with great caution.

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[1]Chi-square values of 746, 1764, and 954 were obtained for the variables SAT, CS, and IS respectively, all with 4 degrees of freedom and all statistically significant with $p < .001$. The "goodness of fit" test followed Croxton and Cowden, pp. 690-91.

[2]Kirk, pp. 61-62; and Box, pp. 318 and 333.

[3]The Hartley F_{max} test is not reported here because the numbers of observations differ greatly between treatments. (See Kirk, p. 62).

TABLE 5-17

TESTS FOR HOMOGENEITY OF VARIANCE
ONE-WAY ANOVAS, SAT WITH CSIS AND OT

Test	Value	P
CSIS		
Cochran's C	0.4400	0.0 (Approx)
Bartlett-Box F	156.908	0.0
OT (based on branch)		
Cochran's C	.3650	.025 (Approx)
Bartlett-Box F	2.914	.053
OT (based on function)		
Cochran's C	.3764	.003 (Approx)
Bartlett-Box F	2.859	.056

Because of possible violations of the assumptions of normality and heterogeneity of variance, and consistent with the research design, the data were also analyzed using a nonparametric correlation technique.

Nonparametric Correlation

The Kendall partial rank correlation coefficient was the nonparametric technique used to determine if OT has a significant influence on the relationship between subordinate satisfaction and the two leader behavior variables. Differences in partial rank coefficients of correlation between SAT and the two behavioral dimensions were examined for the three levels of OT; mechanistic, intermediate, and organic. Because of the emphasis on rank order of scores, median scores for each case on CS and IS were used in the nonparametric correlation analysis, whereas mean scores were used in the parametric correlation analysis described above.

The specific null hypotheses tested in the nonparametric analysis are (1) Ho_6: There are no signficant correlations between CS and SAT for any of the three levels of OT, and (2) Ho_7: There are no significant correlations between IS and SAT for any of the three levels of OT. The findings will be discussed first for OT based on function, and then for OT based on branch.

OT Based on Function

Table 5-18 shows the Kendall rank correlation coefficients (taus) for SAT with CS, and SAT with IS for the three levels of OT, with OT

TABLE 5-18

KENDALL RANK CORRELATION COEFFICIENTS
SATISFACTION WITH CS AND IS
(OT BASED ON FUNCTION)

Leader Behavior	Organizational Type					
	Mechanistic (n=507)		Intermediate (n=1505)		Organic (n=201)	
	Tau	Partial Tau	Tau	Partial Tau	Tau	Partial Tau
CS	.5885*	.4036	.5916*	.4275	.5672*	.3707
IS	.5580*	.3436	.5485*	.3479	.5434*	.3222

*$p < .001$

based on function. Zero-order coefficients (taus) are shown along with partial rank correlation coefficients since, as explained in Chapter IV, there are no tests of significance for the partial tau.[1]

For the zero-order taus, both CS and IS are significantly correlated with the dependent variable for all levels of OT. This fact, together with the relatively large magnitudes of the partial taus, provide some evidence for rejecting the null hypotheses H_{0_6} and H_{0_7}. There do appear to be rather strong relationships between the leader behavior variables and SAT for all three levels of OT.

Figure 5-8a illustrates the influence of organizational type on Kendall partial rank correlations (partial taus) of SAT with CS. The solid line represents the research findings; the dashed line represents the researcher's expectations. The differences between the partial taus for SAT and CS across the three levels of OT are slight (the maximum range of differences is only .0568). This is weak evidence, at best, that organizational type based on function moderates the relationship between CS and SAT.

As shown in Figure 5-8b, differences between the partial taus for IS and SAT for the three types of organizations are barely discernable (the maximum range of differences is only .0257). Although the partial rank correlation between SAT and IS is highest for intermediate type organizations, there is no reason to suspect that it is significantly

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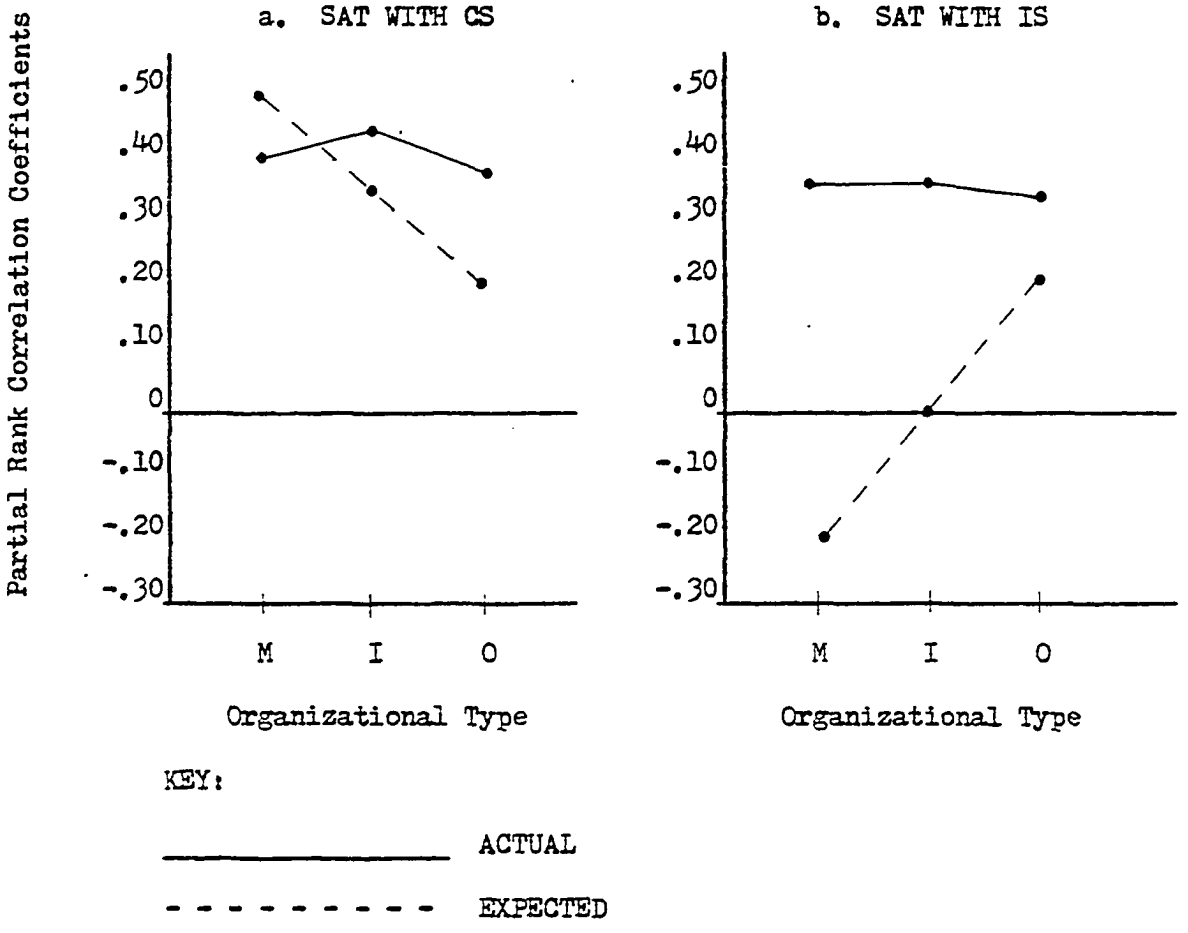
[1]Siegel, p. 228.

FIGURE 5-8

GRAPHS OF KENDALL PARTIAL RANK CORRELATION COEFFICIENTS
ACTUAL VERSUS EXPECTED
(OT BASED ON FUNCTION)



different. Also, contrary to expectations, the Kendall partial rank correlation coefficient for IS and SAT for mechanistic organizations is positive, not negative.

OT Based on Branch

Table 5-19 shows the Kendall rank correlation coefficients (taus) for SAT with CS and SAT with IS for the three levels of OT, with OT based on branch. Zero-order coefficients (taus) are shown in addition to the partial rank correlation coefficients and are significant for all levels of OT. Also, partial taus for both CS and IS are of relatively large magnitude, further evidence supporting rejection of the null hypotheses Ho_6 and Ho_7. Both CS and IS appear to be correlated positively with SAT for mechanistic, intermediate, and organic types of organizations.

TABLE 5-19

KENDALL RANK CORRELATION COEFFICIENTS
SATISFACTION WITH CS AND IS
(OT BASED ON BRANCH)

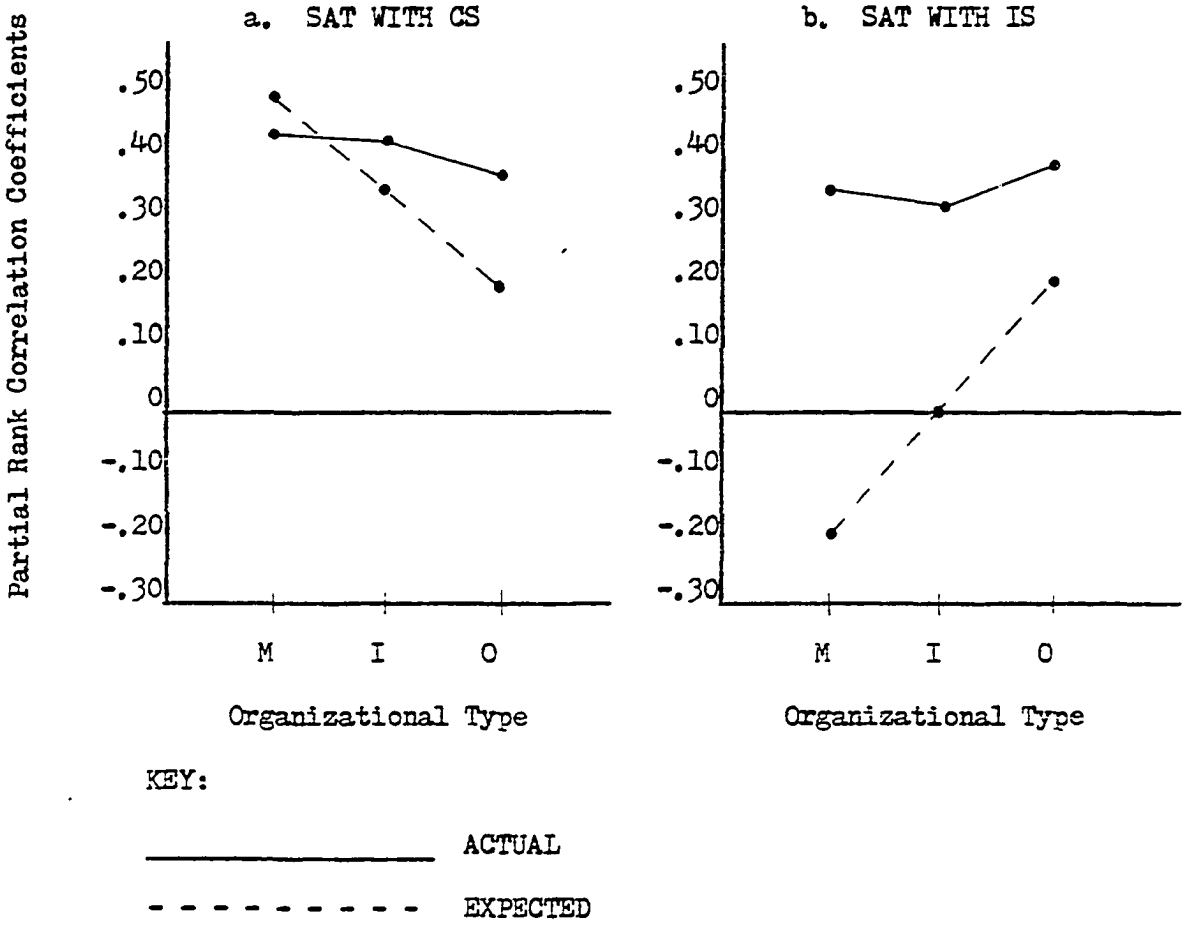
Leader Behavior	Organizational Type					
	Mechanistic (n=1287)		Intermediate (n=654)		Organic (n=347)	
	Tau	Partial Tau	Tau	Partial Tau	Tau	Partial Tau
CS	.5963*	.4327	.5865*	.4257	.5715*	.3659
IS	.5464*	.3396	.5276*	.3152	.5822*	.3870

*$p \leq .001$

Figure 5-9a illustrates the influence of organizational type on Kendall partial rank correlations (partial taus) of SAT with CS. The solid line represents the research findings; the dashed line represents the researcher's expectations. The differences between the partial taus

FIGURE 5-9

GRAPHS OF KENDALL PARTIAL RANK CORRELATION COEFFICIENTS
ACTUAL VERSUS EXPECTED
(OT BASED ON BRANCH)



for CS and SAT across the three levels of OT are of relatively small magnitude (the maximum range of differences is .0668), although the directional trend is as expected. This is weak evidence, at best, that organizational type moderates the relationship between SAT and CS.

Figure 5-9b shows that the differences between the partial taus for SAT and IS across the three levels of OT are also slight (the maximum range of differences is .0718). As expected, the correlation was highest for organic organizations, but the expected negative relationship for mechanistic organizations did not materialize. There is meager evidence here to indicate that organizational type moderates the relationship between IS and SAT.

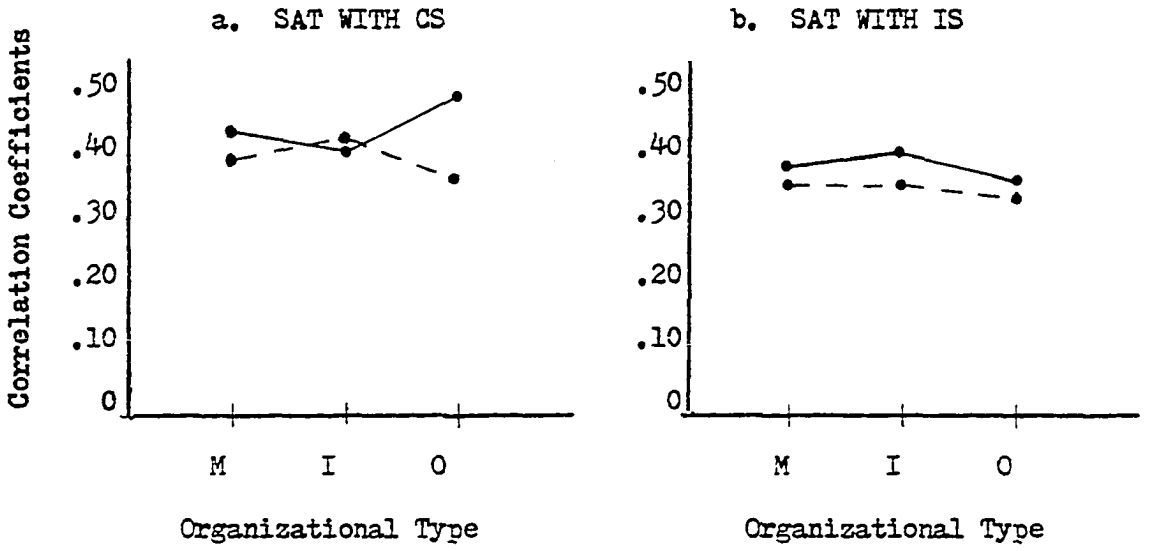
Parametric Versus Nonparametric Analysis

With OT based on branch, graphs of the Kendall partial correlation coefficients for both SAT with CS and SAT with IS (Figure 5-9) are similar in shape to those of the Pearson product-moment partials (Figure 5-6). But when OT is based on function, an important difference is noticeable, as shown in Figure 5-10.

The general trend for correlation between SAT and IS (Figure 5-10b) under the influence of OT is relatively consistent, whether parametric or nonparametric analysis is applied. For the SAT/CS relationship (Figure 5-10a), however, the partial taus are substantially lower for organic organizations than for the other two organizational types, whereas partial

FIGURE 5-10

PARAMETRIC VS NONPARAMETRIC PARTIAL CORRELATIONS OT BASED ON FUNCTION



KEY:

_____ Pearson product-moment correlation coefficients

- - - - - - - - - Kendall rank partial correlation coefficients

r's are higher (though not significantly so). This contradiction may very well exist because neither the SAT nor CS variable is normally distributed in the research sample. The finding illustrates the importance of utilizing nonparametric techniques when the usual assumptions of parametric statistics do not hold.

Other Findings

This section reports other findings required for adequate interpretation of the results of this exploratory, ex post facto research. These

findings, developed largely in accordance with the research plan, concern (1) the adequacy of the leader behavior scales that were derived from the Army's leadership questionnaire, and (2) the possible biasing effect of deleted cases on the research.

Adequacy of the Leader Behavior Scales

The derived leader behavior scales were examined for adequacy with respect to (1) intercorrelations of CS and IS, (2) item-total correlations for the CS and IS instruments, and (3) reliability of the two instruments as measured by coefficient alpha.

Intercorrelations of CS and IS

The correlation coefficients for CS and IS for the entire research sample (n=2334) are .6772 (the Pearson product-moment r) and .5371 (the Kendall tau). Both coefficients are significant at the .001 level. These high intercorrelations indicate a lack of discriminant validity since Consideration and Initiating Structure were designed and conceptualized as independent dimensions.[1]

Item-Total Correlations for CS and IS

Item-total correlations (Pearson product-moment) were computed for the CS and IS scales to determine if the derived instruments were

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[1]Hemphill and Coons, p. 20; Fleishman, "Leader Behavior Description," p. 110; and Nan Lin, Foundations of Social Research (New York: McGraw-Hill Book Co., 1976), p. 174.

homogeneous (i.e., whether the two instruments are internally consistent) with respect to content.[1] Nunnally asserts that "tests should be as homogeneous as possible," and that "items within a measure are useful only to the extent that they share a common core--the attribute which is to be measured."[2]

The item-total correlations shown in Table 5-20 are indicators of the degree to which the CS and IS items share, respectively, a common core of the leader behavior constructs Consideration and Initiating Structure. The coefficients shown in the table are "corrected" Pearson product-moment coefficients, which measure the correlations between each item of a given dimension (CS or IS) and the sum of all other items of that dimension.[3]

All the coefficients shown in Table 5-20 are significant at the .001 level. Most of the coefficients for CS are positive and relatively high. (The average of the absolute values of the coefficients for CS is .4889). However, items 23, 28, and 36 show <u>negative</u> correlations with the sum of all other items. This result suggests an <u>absence</u> of homogeneity of content, since the items are constructed so that high scores on the items are indicative of high Consideration. For example, Item 28, "He criticizes subordinates in front of others," is assigned a value of seven (7) for "Not Ever" (high consideration) and one (1) for a "A Great Deal" (low consideration). Hence, if these three items

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[1]Jum C. Nunnally, <u>Psychometric Theory</u> (New York: McGraw-Hill Book Co., 1967), pp. 261-63.

[2]Ibid., pp. 254-55. [3]Ibid., pp. 262-63.

TABLE 5-20

ITEM-TOTAL CORRELATION COEFFICIENTS[a]

Consideration Items			Initiating Structure Items		
Item Number	Page Number	Corrected Coefficient[b]	Item Number	Page Number	Corrected Coefficient[b]
2	381	.4933	1	381	.6542
4	381	.6233	8	382	.5624
5	382	.4440	10	383	.6426
17	385	.5045	13	384	.5837
19	385	.6011	14	384	.4326
21	386	.3797	18	385	.3161
23[c]	386	-.4702	27	387	.6684
24	386	.6434	...	...	...
28[c]	388	-.4912	...	...	...
34	389	.6335	...	...	...
36	390	-.6037	...	...	...

NOTES:

a. Page numbers refer to locations of items in the CONARC Leadership Questionnaire (Appendix B).

b. All coefficients are significant at the .001 level.

c. Reversed scoring.

measure the same consideration attribute as the other eight CS items, item-total correlations should be positive. It seems highly illogical that these three items would be negatively correlated with the sum of all other items of the dimension. Such a condition would imply, for example, that the leader who criticized subordinates in front of others was highly considerate.

Examination of the Army's questionnaire in an effort to find an explanation for these unexpected findings revealed three possible causes. First, of the forty-three items in the questionnaire, only ten are reflected, or reverse scored items. (Leaders are given high scores on reflected items if the leader never, or rarely ever, displays behaviors described by the item). Among the ten reflected items are CS items 23 and 28, "He resists changes in ways of doing things," and "He criticizes subordinates in front of others," respectively, items found to be negatively correlated with all other consideration items. Nunnally suggests that the number of positive (normal) and negative (reflected) items in a given instrument should be equal.[1] Schriesheim and Kerr have criticized " . . . all versions of the Ohio State scales" on a number of counts including " . . . an inadequate number of reflected (reverse scored) items, leading to an inability to control for agreement response tendencies (predisposition to respond using only one side of the response scale, regardless of item content)."[2] Thus, the imbalance of positive and negative items may account for the negative item-total correlations for CS items 23 and 28.

Second, there may exist a systematic bias in the arrangement of the scales in the Army's questionnaire. Thirty-eight of the forty-three items have the highest possible value (7) at the top of the scale; only five items have the lowest possible value at the top, including the CS items 23 and 36, "He resists changes in ways of doing things," and

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[1]Ibid., p. 533. [2]Schriesheim and Kerr, "Theories and Measures," p. 22.

"He explains the reason for his actions to his subordinates," respectively. A large number of respondents may very well have confused the ends of the scale for these two CS items.[1] Consistent with Nunnally's recommendations for equal numbers of positive and negative statements, it would appear appropriate that if scales are to be reversed in a questionnaire, there should be equal numbers of each form of the scale randomly distributed throughout the questionnaire.

A third possible explanation is that the CS instrument is actually heterogeneous in content, a possibility for which there is research support.[2]

With regard to the item-total correlations for IS, all the coefficients are positive and relatively high. (The average value of the coefficients for IS is .5514). These item-total correlation coefficients indicate a high degree of homogeneity of content, evidence that the derived IS instrument is internally consistent and adequate with respect to that quality.

The leader behavior scales were also examined for adequacy with respect to reliability as measured by coefficient alpha.

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[1]It should be noted, however, that one other item, CS 34, "He backs up subordinates in their actions," also has the lowest possible value at the top of the scale, and yet is positively correlated with the sum of all other items of the Consideration dimension.

[2]Schriesheim and Kerr, "Psychometric Properties," p. 758.

Coefficient Alpha

Coefficient alpha is a measure of reliability, or ". . . the accuracy or precision of a measuring instrument."[1] Kerlinger has further defined reliability as " . . . the proportion of the 'true' variance to the total obtained variance of the data yielded by a measuring instrument."[2] With explicit reference to coefficient alpha, Nunnally has defined the reliability coefficient of any test as " . . . the estimated average correlation of that test with all possible tests with the same number of items which are obtainable from sampling a domain."[3]

The formula used in the research to compute coefficient alpha is:[4]

$$\alpha = \frac{k}{k-1}\left[1 - \frac{\Sigma\sigma_i^2}{\sigma_y^2}\right]$$

where α = coefficient alpha
k = number of items in test
$\Sigma\sigma_i^2$ = sum of variances of all items in test
σ_y^2 = variance of the total test

Calculated from the above formula, coefficient alphas for the CS and IS instruments are, respectively, .3684 and .7925. The coefficient for CS is very low, considering the Schriesheim and Kerr conclusions that internal consistency reliability coefficients for both CS and IS from the SBDQ and LBDQ-XII instruments are usually .75 or better.

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[1]Kerlinger, p. 443. [2]Ibid., p. 446. [3]Nunnally, p. 197.
[4]Ibid., p. 196.

Coefficients as low as .60 " . . . are not typical for the Ohio State instruments."[1]

The relatively large coefficient alpha for the IS instrument appears satisfactory for this exploratory research. The next section discusses findings relative to deletion of cases with invalid or missing data.

Findings Concerning Deleted Cases

Certain cases were deleted from the research because they consisted of only partial records; i.e., the third card of the three data card record was missing from the Army's data bank. Another group of cases was deleted because of the existence of spurious values on key variables (CS, IS, and SAT). This section reports findings concerning these deleted cases.

Cases Deleted Because of Missing Data Cards

Four hundred and ninety cases were deleted because of missing data cards. The researcher was unable to locate, or determine the reason for, the missing records. The decision was made to delete the missing cases because the missing cards contained numerous variables required for the analysis.

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[1]Schriesheim and Kerr, "Theories and Measures," pp. 21-22.

To examine the potential biasing effect of the deleted cases, the 490 partial cases were compared with the final research sample (n = 2334) using a series of Chi-square analyses.[1] Forty-three variables were compared and only two were significantly different. Both were directly relevant to this research, as indicated by the second column of Table 5-21, a summary of the significant findings of the Chi-square analyses.

For several of the comparisons, more than 20 per cent of the expected frequencies were smaller than 5, or one or more of the expected frequencies were smaller than 1. Where this condition was found, expected

TABLE 5-21

SIGNIFICANT DIFFERENCES BETWEEN RESEARCH SAMPLE AND CASES DELETED DUE TO MISSING DATA CARDS

Questionnaire Item	Research Relevant	Chi-square	df	p
IS 1 (Lets individuals know what is expected)	YES	22.47	6	.0010
CS 24 (Rewards individuals)	YES	11.22	6	.0817

frequencies were increased by combining adjacent categories in meaningful combinations as suggested by Siegel.[2]

[1]Nie et al., pp. 223-24, 230-248; Croxton and Cowden, pp. 681-93; and Siegel, pp. 42-47.

[2]Siegel, p. 46.

One of the seven IS items, "He lets the members of his unit know what is expected of them," was significantly different (Chi-square = 22.47, p = .001). The deleted cases tend to have higher scores on this item.

One of the eleven CS items, "He rewards individuals for a job well done," was also significantly different (Chi-square = 11.22, p = .0817). Deleted cases tend to have slightly higher scores on this variable, also.

It seems reasonable to expect that out of the forty-three variables, two would differ significantly from one group to another purely by chance. Hence, there seems to be little reason to fear a systematic biasing of the results because of omission of the 490 incomplete records from the data analysis.

Cases Deleted Due to Spurious Values

One-hundred and fifteen (115) cases were deleted because they contained one or more values outside the range of possible values (1 to 7) for the CS, IS, and SAT items. Another case was deleted because the respondent indicated he was a first lieutenant under the questionnaire item "grade" and an enlisted man under "Branch" and "Source of Commission." Comparison of this combined group of 116 cases with the research sample showed that, out of a total of 63 variables in the Army data bank that were compared, 8 variables differed significantly; two at the .001 level, one at the .01 level, four at the .05 level, and one at the .10 level (Table 5-22).

TABLE 5-22

SIGNIFICANT DIFFERENCES BETWEEN RESEARCH SAMPLE AND CASES DELETED DUE TO SPURIOUS VALUES

Questionnaire Item	Research Relevant	Chi-square	df	p
Grade	YES	12.10	5	.0334
Mission*	YES	11.40	5	.0453
CS 21 (Criticizes specific act)	YES	23.69	6	.0006
Total Years Active Service	NO	16.11	4	.0029
PMOS*	NO	11.81	1	.0010
Geographic Location	NO	10.91	4	.0276
Trains and develops subordinate	NO	12.40	6	.0535
Knows men and capabilities*	NO	10.60	5	.0629

* Categories combined to allow Chi-square comparison

Only three of the items directly relevant to this research were significantly different, as indicated in the second column of Table 5-22. The deleted group contained a larger proportion of low ranking officers (lieutenants) and a smaller proportion of high ranking officers (lieutenant colonels and colonels).

With respect to the variable "Mission," it was necessary to combine categories because of the large number of cells with expected frequencies of less than 5 or less than one. The 10 "missions" were combined consistent with the scheme outlined in Figure 4-4 (i.e., Divisional Forces, Field Artillery, and Air Defense Artillery were combined into a single "combat" functional category, etc.). Mission variables not used

in the research ("specialized units," "Military Intelligence," and "Woman's Army Corps") were combined into a single category for the Chi-square analysis. The comparison indicated that there were fewer deleted cases from Education and Training units than would have been expected if the deleted group and the research sample had been homogeneous. Also, Administrative, Logistics, and Research units were overrepresented in the deleted group.

As for the consideration item (CS 21), the mean score for the deleted group was somewhat lower than that of the research sample (4.887 versus 5.005). Also, the group of deleted cases reflected larger proportions of extreme scores (i.e., values of 1 and 2, and 6 and 7) on that item.

Examination of the Chi-square tables for the non-relevant demographic variables indicated that the deleted group contained, proportionately, (1) more officers with less than two years active service and fewer with ten years or more; (2) more officers with inconsistent or erroneous reponses on the PMCS (primary military occupational specialty) item; and (3) fewer officers from the Continental United States (CONUS), Pacific, Alaska, and "other" areas.

The last two items in Table 5-22 are items used by the Army to measure observed leader behavior. The items were not used in this research because they could not be traced to the Ohio State leader behavior dimensions of consideration and initiating structure.

One item, "Type and Location of Unit," could not be tested using the Chi-square test since (1) more than 20 per cent of the expected

frequencies were smaller than 5, (2) two of the expected frequencies were smaller than 1, and (3) categories could not be meaningfully combined to correct for conditions (1) and (2). Visual examination of the Chi-square results suggests, however, that CONUS operational and training units were underrepresented in the deleted group, while other CONUS units were overrepresented.

The analysis of differences between the research sample and the cases deleted because of spurious values on IS, CS, and/or SAT items suggests that there may be systematic biasing of the research sample as described above. As a result there is a serious question concerning the representativeness of the research sample.

Summary of Research Findings

In this chapter, findings bearing on the two research questions have been reported. In addition, findings relevant to the adequacy of the derived leader behavior scales were examined, as well as evidence pertaining to the potential biasing effect of deleted cases.

Findings Concerning the First Research Question

In order to obtain data bearing on the first question, a survey was conducted of a non-random sample of officers at the U. S. Army Administration Center. This survey yielded primary data which provided affirmative evidence bearing on the question, "Does the Army embrace a range of organizational types?" Army officers do seem to perceive significant differences in organizational types, regardless of whether

the typology is based upon perceptions of different functional areas of the Army, or upon perceptions of the different branches of the Army. The answer to the first question seems to be affirmative, regardless of whether parametric or nonparametric techniques are applied.

Because of evidence indicating that the survey data is not normally distributed and has heterogeneous variances, it was decided to categorize cases of the Army leadership data bank, for subsequent analysis, according to the results of the distribution-free multiple comparison test of Miller.[1] The research function was found to be significantly more organic than the other four functions; therefore, cases in the Army leadership data bank involving research units were classified as organic. Although there were no significant differences between the other four functions, they were arbitrarily divided into mechanistic and intermediate organizational types based on average rank scores on the distribution-free multiple comparison test. Thus, administration and logistics functions were classified as mechanistic, while combat and education and training functions were classified as intermediate organizational types.

An identical approach was used to classify the nineteen branches. The most organic homogeneous subgroup, consisting of the Chaplain, Military Intelligence, Medical Corps, Medical Service Corps, and Judge Advocate General branches, was classified as organic. The remaining branches were classified, somewhat arbitrarily (though based on average rank scores on the distribution-free multiple comparison test) into mechanistic and intermediate organizational types.

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[1]Miller, pp. 166-67.

Findings Relevant to the Second Research Question

Data from the Army's leadership data bank were analyzed to develop findings relevant to the second research question, "Does organizational type have a moderating influence on the relationship between leadership style and organizational effectiveness?"

Factorial analyses of variance indicated that OT had no significant direct effect on SAT, regardless of whether OT was determined by function or branch. With OT determined by function, the value of F for the main OT effect approached significance ($p = .13$). CSIS was found to have a significant influence on SAT, with a high CS/high IS leadership style being favored by the research sample and a low CS/low IS style being least satisfactory. With OT determined by function, the interaction effects between OT and CSIS approached significance ($p = .14$). A graph of the interaction effects suggests that members of mechanistic organizations, in choosing between leaders who are high on consideration and low on structure versus leaders who are low on consideration and high on initiating structure, are somewhat more satisfied with the former.

Supporting the factorial analyses of variance findings with respect to CSIS, partial correlations between both CS and IS with SAT were statistically significant for <u>all levels of OT</u>, regardless of how OT was determined. With OT based on function there were no significant differences between partial correlations for the various levels of OT, as determined by the Hays test. This finding seem to confirm evidence provided by the factorial designs, indicating that OT does <u>not</u> influence the

relationship between leader behavior and organizational effectiveness as measured by subordinate satisfaction with leader performance.

However, when OT was based on branch, significant differences were found between partial correlations of CS with SAT and IS with SAT for intermediate and organic types of organizations. Also, significant differences were found between partial correlations of CS with SAT for mechanistic and organic organizations. This evidence suggests that OT does influence the leader behavior-organizational effectiveness relationship. Subordinates in mechanistic and intermediate organizations seem to want more consideration behaviors than subordinates in organic organizations. Also, subordinates in organic organizations seem to prefer higher levels of structuring behaviors than subordinates in intermediate type organizations. The correlation between IS and SAT in mechanistic organizations was found to be positive, not negative as had been expected.

Superimposing graphs of partial correlations for organizational type based on function over comparable graphs with organizational type based on branch reveals a noticeable lack of congruence, especially for the CS/SAT relationship in organic organizations. A discussion of this finding was postponed to Chapter 6.

Since evidence was found indicating that the usual assumptions of parametric statistics did not hold for the research data, Kendall rank correlation coefficients were computed, both zero-order and partial correlations. Comparison of the Kendall taus with the Pearson product-moment "r's" showed important differences in findings, depending on whether

parametric or nonparametric methods were used. This finding illustrates the importance of using nonparametric statistics for analysis of data for which the normal assumptions of parametric statistics do not hold.

Other Findings

Other findings concerned the adequacy of the derived leader behavior scales and the potential biasing effect of the deleted cases.

The leader behavior scales used in the research are suspect on three counts. First, high correlations found between the supposedly independent dimensions of consideration and initiating structure raise the question of whether the concepts were satisfactorily operationalized. Second, three of the eleven CS items showed negative item-total correlations, suggesting a lack of internal consistency for the CS instrument. Finally, the reliability of the CS instrument, as measured by coefficient alpha, was very low, casting further doubt on the adequacy of the CS instrument.

With respect to possible bias due to deletion of cases, there seemed to be no serious affect attributable to deletion of cases with missing data cards. However, the deletion of cases due to spurious values on the CS, IS, and/or SAT variables seems to result in a research sample that is of somewhat higher rank and longer active service than the deleted group. The research sample also differed significantly from the deleted cases with respect to unit mission, primary military occupational specialty, unit type and location, and three items of leader behavior, including one consideration item. These findings cast serious doubt on the representativeness of the research sample.

Chapter VI, following, provides conclusions based on the findings reported above, and explores the implications of the research for managers. The next chapter also suggests avenues for further research concerning the phenomenon of leadership.

CHAPTER VI

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Introduction

This chapter discusses the conclusions, implications, and recommendations derived from the findings of this exploratory research on leadership behavior in the U. S. Army. The first section contains relevant conclusions concerning the research question and the interrelationships among the variables examined in the study: organizational type, consideration and initiating structure, and satisfaction with leader performance. The second section discusses the implications of the research findings for management. The final section suggests directions for further research indicated by this study.

Conclusions

The conclusions of this research are discussed below under the subheadings determination of organizational type, organizational type and satisfaction, leader behavior and satisfaction, organizational type as a moderator, and other conclusions.

Determination of Organizational Type

The findings provide strong evidence that officers of the U. S. Army do, indeed, perceive significant differences in the organizational type of Army functions and branches, and that, therefore, the Army does embrace a range of types. Research units are perceived as being significantly more organic than administrative, logistics, combat, and education and training units. Chaplain, Military Intelligence, Medical Corps, Medical Service Corps and Judge Advocate General Corps branches are perceived as being significantly more organic than any of the other 13 branches. The distinctions are not precise; that is, there is no clear dividing point between organic, intermediate, or mechanistic types, and the relative rankings vary slightly, depending upon whether parametric or nonparametric analytical techniques are used.

The findings also suggest that, in the case of the Army's branches, a somewhat logical pattern emerges when individual responses are aggregated. Administrative and combat branches tended to be perceived as mechanistic, technical service branches as intermediate, and professional branches as organic organizational types. Thus, the instrument used to measure organizational type, has face validity. That is the " . . . instrument 'looks like' it measures what is is intended to measure."[1] Branches within each of the various branch categories were expected to have similar organizational characteristics and the findings suggest that they do.

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[1]Nunnally, p. 99.

According to Nunnally this is " . . . one aspect of content validity, which concerns an inspection of the final product to make sure that nothing went wrong in transforming plans into a completed instrument."[1]

An alternate explanation for the findings relevant to the first research question is that the reported perceptions of officers may reflect organizational socialization, rather than true differences in organizational characteristics. Since all Army officers are subjected to a common core of doctrine, it may very well be that the phenomenon manifested in the research findings is being consciously or unconsciously taught by the Army. Few of the respondents could have had extensive personal experience with all five functions and all nineteen branches; yet only eight respondents appeared to have had difficulty in describing each function and branch in terms of organizational type.

Another possible explanation is that Army officers may have been influenced in their perceptions by external exposure to the concepts of mechanistic and organic organizations. Their responses may be heavily influenced, for example, by an evolving "conventional wisdom" that research units are supposed to be more organic and administrative units are supposed to be more mechanistic.[2] The fact that all respondents to the organizational type survey were college graduates and that over half

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[1]Ibid.

[2]Galbraith suggests that the "acceptability" of ideas, not just truth, may serve to create a consensus, which he describes as "the conventional wisdom." John Kenneth Galbraith, The Affluent Society, College ed. (Cambridge, Mass.: Riverside Press, 1960), pp. 7-9.

had master's degrees makes it difficult to totally reject this notion as a possible explanation for the findings. The finding that combat units were perceived as intermediate, not mechanistic as expected, may be attributable to the inability of respondents to differentiate between combat units operating in battle (a turbulent environment) and combat units operating under peacetime conditions (a more stable environment).

A conclusion that officers <u>can</u> perceive differences in the organizational type of Army functions and branches must be tempered by a recognition of several methodological problems inherent in the ex post facto research approach. These will be discussed below under the heading "Other Conclusions."

The next section provides conclusions bearing on the research question, Does organizational type have a moderating influence on the relationship between leadership style and organizational effectiveness? The conclusions are presented in terms of (1) the <u>direct</u> effect of organizational type on satisfaction with leader performance; (2) the <u>direct</u> effect of leader behavior, expressed as consideration and initiating structure, on satisfaction with leader performance; and (3) the moderating effect of organizational type on the leader behavior/satisfaction relationship.

Organizational Type and Satisfaction

Organizational type, as operationalized here, appears to have no direct effect on subordinate satisfaction with leader performance. This conclusion is based on the factorial analyses of variance which indicate

that satisfaction with leader performance is not significantly influenced by the independent variable, organizational type, regardless of whether organizational type is operationalized in terms of function or branch.

However, the conclusion that organizational type has no direct effect on satisfaction with leader performance must be tempered with the recognition that with OT based on function, the value of F approached significance at the .10 level ($p = .13$). There is, therefore, a modicum of evidence that officer subordinates of field grade officers in mechanistic organizations are less satisfied than their colleagues in intermediate and organic organizations. Also, examination of the means shows that officers in the organic branches are slightly less satisfied than officers in intermediate and mechanistic branches. The direct influence of OT (however small) appears to be different depending on the basis of the OT categorization.

Leader Behavior and Satisfaction

Evidence bearing on the direct relationship between leader behavior and satisfaction suggests very strongly that subordinate satisfaction with leader behavior is greatest when the leader is perceived as displaying <u>both</u> high consideration <u>and</u> high initiating structure. (Figures 5-3 and 5-4). This relationship is indicated regardless of analytical technique and regardless of how the organizational type variable is operationalized.

The one-way analysis of variance and Scheffé multiple comparison test revealed that subordinates whose leaders were high on <u>both</u> behavioral dimensions were significantly more satisfied with their leaders than

subordinates of (1) leaders who were high on one dimension and low on another, and (2) leaders who were low on both dimensions. The parametric partial correlation analyses showed both consideration and initiating structure to be positively and significantly ($p < .001$) correlated to subordinate satisfaction with leader peformance regardless of organization type. Also, the raw (uncontrolled) Kendall taus, for each of the two leader behavior variables with the dependent variable, were positive and significant at the .001 level for all three types of organizations. Finally, all the partial Kendall taus (where the correlation of one leader behavior dimension with the dependent variable was controlled for the other dimension) were positive, irrespective of organizational type.

These findings are consistent with a large body of research and theory which holds that, in general, the most effective leaders (effective, in this case, in that they produce satisfied subordinates) are those that display both high consideration and high structuring behaviors, regardless of other factors. The evidence, here, seems overwhelming and is supportive of traditional Army leadership doctrine which stresses that the military leader must balance concern for the mission with concern for his men.[1] The evidence supports Stogdill's conclusions based on his review of 26 studies that examined relationships between leader consideration and initiating structure and productivity and satisfaction.[2] Filley, House, and Kerr, in their extensive review of the leadership literature, found partial support for their "Great Man" proposition, the proposition that

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[1]U. S., Dept. of the Army, Leadership for the 1970's, p. 3.

[2]Stogdill, Handbook, p. 40.

that "effective leaders are characterized by both supportive and instrumental behavior."[1] Also, the findings here conform to the Blake and Mouton generalization that the most effective management style, the 9,9 style, is one which combines a high concern for production with a high concern for people.[2] Before accepting these findings concerning leader behavior and satisfaction as conclusive, however, it is appropriate that alternative explanations be explored.

One alternate explanation for the findings concerning leader behavior and satisfaction of subordinates with their leader's performance reverses the traditional cause-and-effect relationship. Perhaps the leader is considerate toward his subordinate and helps structure the subordinate's work <u>because</u> the subordinate displays, outwardly, his satisfaction. While this interpretation is not so intuitively appealing, it is, nevertheless, a plausible explanation for the findings. Lowin and Craig, for example, have demonstrated in a laboratory study that the manipulation of subordinate <u>performance</u> can cause differential leadership styles as measured by closeness of supervision, initiating structure, and consideration for the subordinate.[3] Also, there is support in the

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[1]Alan C. Filley, et al., <u>Managerial Process and Organizational Behavior</u>, 2d ed. (Glenview, Ill.: Scott, Foresman, & Co., 1976), pp. 152, 230-34.

[2]Blake and Mouton, <u>Managerial Grid</u>, pp. 316-18.

[3]Lowin and Craig, pp. 440-58.

work of Cashman and associates for the notion that subordinate satisfaction with leader's performance may actually result in differential leader behavior. In the Cashman research, "vertical dyadic linkages" between leaders and members of their work groups resulted in "Out-members" developing "supervision exchanges" with their superiors and "In-members" developing "leadership exchanges" with their bosses.[1] Since the Army's study was cross-sectional in nature, there is no way to establish causal direction in the present research. Therefore, the possibility that subordinate satisfaction caused the leader behavior observed cannot be dismissed as a possible explanation for the findings.

Another possible explanation cannot be dismissed lightly, either. The resultant high positive relationships between each of the leader behavior variables and subordinate satisfaction with leader performance may be attributable to the "halo" effect. Guion defines the term halo as " . . . the tendency to rate a person in about the same way on all traits because of a general, overall impression--whether favorable or unfavorable."[2] Perhaps respondents to the Army's questionnaire tended to rate their leaders high (or low) on both dimensions because of a generalized feeling of satisfaction (or dissatisfaction) with their leader's performance.

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[1]Cashman et al., pp. 291-95. See, also, C. N. Green, "The Reciprocal Nature of Influence Between Leader and Subordinate," Journal of Applied Psychology 60 (1975): 187-93; and J. C. Barrow, "Worker Performance and Task Complexity as Causal Determinants of Leader Behavior Style and Flexibility," Journal of Applied Psychology 61 (1976): 433-40.

[2]Robert M. Guion, Personnel Testing (New York: McGraw-Hill Book Company, 1965), p. 99.

In support of such an interpretation, leader behavior dimensions of consideration and initiating structure are conceptually independent. But in this study consideration and initiating structure are highly correlated (r = .6772, tau = .5371, with both statistics significant at the .001 level). This finding is indicative of a lack of independence and suggests the possible presence of halo. As expressed by Seeman under similar circumstances, "All this does not demonstrate halo . . . but it does lead one to be wary on this point."[1] More recently, Schriesheim and Kerr, in reference to the same issue stated, "It may be that eliminating halo and achieving true independence of the two dimensions [consideration and initiating structure] is impossible."[2] Respondents may not be able to observe and report on a given leader's behavior without simultaneously evaluating that behavior.[3]

Conclusions about the relationship between organizational type and satisfaction with leader performance must also be tempered with an awareness of the methodological problems that will be discussed below under "Other Conclusions."

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[1]Melvin Seeman, "A Comparison of General and Specific Leader Behavior Descriptions," in Leader Behavior, ed. Stogdill and Coons, p. 101.

[2]Chester Schriesheim and Steven Kerr, "Psychometric Properties," p. 762.

[3]J. K. Hemphill and A. E. Coons, Leader Behavior Description (Columbus, Ohio: Personnel Research Board, Ohio State University, 1950), cited in Schriesheim and Kerr, "Psychometric Properties," p. 762.

The next section presents conclusions pertaining to the moderating effects of organizational type on the relationship between leader behavior and satisfaction with leader performance.

Organizational Type as a Moderator

The evidence bearing on the moderating effect of organizational type on the leader behavior/satisfaction with leader performance relationship is mixed. When leader behavior was operationalized by the independent variable CSIS (having four possible combinations of high and low consideration and initiating structure behaviors) the interaction effect of organizational type and leader behavior in the factorial analysis of variance was not statistically significant. This finding held regardless of whether organizational type was operationalized in terms of function or branch. (The interaction effect approached significance at the .10 level when organizational type was based on function). The factorial analysis provided just a hint, then, that organizational type has a moderating influence. Subordinates in mechanistic organizations seemed to prefer high consideration/low initiating structure leaders, while subordinates in intermediate and organic organizations displayed no preference between the same two styles.

No moderating influence was evident when differences in Pearson product-moment partial correlations between the dependent variable and the two leader behavior variables were examined for the three levels of organizational type, with organizational type determined by function. A priori expectations concerning the relative magnitudes of correlation

coefficients for mechanistic, intermediate, and organic organizations were not confirmed.

The lack of a strong moderating influence of organizational type based on function may be attributable to the absence of a direct correspondence between the five functions evaluated by the Army Administration Center respondents and the variables used by the researcher to operationalize the organizational type (function) variable. (Recall that the researcher grouped 7 codes of a variable defined by the Army as "Mission" to form the five organizational function categories Combat, Education and Training, Administration, Logistics, and Research, as shown in Figure 4-4.) Some precision of definition was, no doubt, lost in the process.

However, when organizational type was based on branch, some significant differences were noted. The partial correlations between satisfaction and consideration were significantly higher ($p < .01$) in mechanistic and in intermediate organizations than in organic organizations.

For the intermediate and organic categories, both of these findings are consistent with the researcher's expectations derived from the Path-Goal literature. However, the coefficient for mechanistic organizations was only slightly higher (not significantly so) than the coefficient for intermediate organizations.

One possible interpretation of these findings, following the Path-Goal thesis, is that officers in the organic branches tend to have less structured tasks (Chaplain, Military Intelligence, Medical Corps, Medical Service Corps and Judge Advocate General). Subordinates in such organizations may tend to derive intrinsic satisfaction from the nature of the

task itself. Leader consideration will be less important to them than to officers in mechanistic and intermediate type organizations, where tasks tend to be more structured and, consequently, more dissatisfying.[1] If this interpretation is correct, it seems logical to conclude that a more precise moderator, such as task structure, or task ambiguity, would produce stronger effects than the macro-construct, organizational type, used in this research.

An alternative explanation, is that the organic branches include a relatively high proportion (35.7 percent) of professional (Chaplain, Medical Corps, and Judge Advocate General) officers. Also, many of the Medical Service Corps officers are professionals, including pharmacists, optometrists, biochemists, etc. According to Davis scientific and professional persons " . . . have a stronger 'cosmopolitan' orientation than most other employees." Cosmopolitans (in contrast to locals) " . . . are as much interested in what their professional peers think of their work as what their manager thinks of it." They are also " . . . more independent and resentful of close supervision. . . ."[2]

It seems logical, then, that cosmopolitans would seek support and consideration from professional peers at least as much as from their supervisors. The association between leader consideration and satisfaction

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[1]House and Dessler, p. 41.

[2]Keith Davis, Human Behavior at Work: Organizational Behavior, 5th ed. (New York: McGraw-Hill Book Co., 1977), p. 338, citing Howard M. Vollmer, Work Activities and Attitudes of Scientists and Research Managers: Data from a National Survey (Menlo Park, Calif.: Stanford Research Institute, 1965), p. 84.

with leader performance should be expected to be lower for cosmopolitans (relatively numerous in the organic branches) than for locals.[1]

It is possible, of course, that the significant differences in partial correlations were spurious; that there really are no real differences. The small magnitude of differences suggest that this is a pregnant possibility. Also, there remains the possibility that some unknown variable, distinct from or perhaps related to, organizational type, is responsible for the significant differences.[2]

Organizational type also seemed to have a moderating effect on the satisfaction/initiating structure relationship. With organizational type based on branch, the partial correlation between those two variables was significantly lower ($p < .02$) for intermediate organizations than for organic ones. The finding is consistent with expectations concerning the direction of differences for the intermediate and organic types, although the partial correlations were higher than expected.

The traditional Path-Goal explanation for these findings suggests that because tasks in the organic organizations tend to be highly unstructured and ambiguous, structuring behaviors on the part of the leader helps subordinates " . . . clarify (a) their perceptions concerning the contingencies they must deal with to complete the task, (b) the expectancies

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[1]See, also, Alvin W. Gouldner, "Cosmopolitans and Locals: Toward an Analysis of Latent Social Roles: I," Administrative Science Quarterly 2 (1958): 281-305; and Robert K. Merton, Social Theory and Social Structure, rev. and enl. ed. (Glencoe, Ill.: Free Press, 1957), pp. 387-420.

[2]Charles N. Green, "Disenchantment with Leadership Research: Some Causes, Recommendations, and Alternative Directions," in Leadership: The Cutting Edge, ed. James G. Hunt and Lars L. Larson (Carbondale, Ill.: Southern Illinois University Press, p. 61.

others have of them, and (c) the degree to which performance will be rewarded."[1] Tasks in intermediate organizations (Ordnance, Quartermaster, Engineers, etc.) tend to be more structured and less ambiguous; hence, structuring behaviors on the part of the leader may be viewed by subordinates as redundant. However, tasks in mechanistic organizations are, by definition, even more structured. If leader initiating structure and satisfaction with leader performance are not highly correlated for intermediate organizations, why would they not be even less so in mechanistic ones?

One possible explanation is that the intermediate branches consist predominantly of the technical branches. Jobs tend to be highly specialized even for officers, and to require rather lengthy formal schooling. Superiors are not expected to know the details of their subordinates' jobs and, consequently, subordinates are given a considerable degree of job autonomy. Officers of the technical branches tend to be perceived as (and to perceive themselves as) experts in their field. Hence, they may tend to resent structuring behaviors on the part of their superiors, or, at least, they may be less appreciative of such behaviors than officers in organic and, perhaps, mechanistic organizations.

In mechanistic organizations, consisting of the four combat branches (Air Defense Artillery, Armor, Field Artillery, and Infantry) and the Finance, Adjutant General, and Military Police branches, superiors are much more apt to know the details of their subordinates' jobs. If the superior

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[1]House and Dessler, p. 41.

has real job expertise, the subordinate is more likely to be tolerant of the structuring propensities of his superior. Also, since the combat branches are heavily represented in the mechanistic organizations, subordinates may tend to value leaders with high initiating structure, due to the ever-present threat of combat. There is considerable evidence in the literature indicating that under combat conditions, subordinates prefer strong, decisive leaders.[1] On the other hand, officer subordinates of the technical service branches (intermediate organizations), serving largely in rear-echelon combat support roles, are, perhaps, less likely to tolerate high initiating structure leaders.

Of course, it is possible that the significant difference between partial correlations is spurious, or that the difference resulted from some heretofore undefined variable. Further research is needed to adequately explain the findings obtained.

The moderating influence of organizational type on the leader behavior/satisfaction relationship was also examined using nonparametric partial correlation. Nonparametric partial correlations between satisfaction and the two leader behavior variables were generally consistent with the parametric correlations with one exception. With organizational type determined by function, Kendall rank partial correlation coefficients for consideration and satisfaction with leader performance were lower in

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[1]House and Dessler, pp. 34-35; Stouffer et al., Combat and Its Aftermath, p. 117; Torrance, pp. 110-11; and Mauk Mulder and Ad Stemerding, "Threat, Attraction to Group, and Need for Strong Leadership," Human Relations 16 (1963): 317-47.

organic organizations than in either mechanistic or intermediate organizations. But with the parametric analysis, the corresponding partial correlations were higher for the organic type of organization than for the other two types. Since the nonparametric analysis is conceptually more appropriate, the weight of evidence suggests that leader consideration behavior is less closely associated with subordinate satisfaction with leader performance in organic organizations than it is in intermediate or mechanistic ones.

From the discussion it is concluded that, although the evidence is conflicting and not strong, there is reason to believe that organizational type does moderate the relationship between leader behavior and organizational effectiveness as measured by satisfaction with leader performance. Failure to demonstrate this fact in the factorial analysis may be attributable to the method of operationalization of leader behavior, i.e., using the relatively insensitive CSIS variable. The failure to obtain consistent results for partial correlations for the two methods of determining organizational type may be attributable to the method of operationalizing the organizational type variable.

The findings strongly suggest that the variable organizational type, if it does act as a moderator, is conceptually different from the less complex moderator "task structure," used predominantly in the Path-Goal literature. Task structure is but one of many of the characteristics which differentiate mechanistic from organic organizations. Structure, procedures, rules and regulations, responsibility and authority, decision-making, and performance emphasis are the differentiating characteristics

of the organizational type construct, as operationalized here. This, perhaps, explains the absence of negative correlations between initiating structure and satisfaction in mechanistic organizations and the general nonconformity of the findings with expectations derived from Path-Goal theory.

Finally, the findings concerning OT as a moderator suggest that the intermediate type of organization should, perhaps, be given more prominence as a potentially unique and important type of organization. The distinction between intermediate and organic, (and possibly between intermediate and mechanistic) may be of even greater importance than the traditional distinction between mechanistic and organic types.

Other Conclusions

Other conclusions concern methodological problems that must be considered with respect to the generalizability of the findings. These other conclusions are discussed below under the subheadings sampling, operationalization of OT, operationalization of CS, operationalization of SAT, and parametric versus nonparametric analyses.

Sampling

Perhaps the most serious methodological problem results from the fact that the sample of officers from the U. S. Army Administration Center, used as a basis for categorizing cases by organizational type, was not a random one. Officers of the Adjutant General's Corps dominate the sample and many branches are unrepresented, particularly the technical service

branches. The sample appears to be nonrepresentative, also, with respect to grade, educational level, and length of active service.

Further, as explained in Chapter III, the Army's research sample of over 30,000 cases was not a random one, and consequently cannot be said to be completely representative of the population of interest. Only installations having over 5000 personnel were sampled, and there is no evidence to indicate that the installations were chosen randomly. The representativeness of the sample was probably further diminished by the deletion of cases with spurious values on key variables.

It is concluded, therefore, that the findings of this ex post facto exploratory study should be used only as bases for the formulation of hypotheses for further research, and should not be used as bases for generalizations.

Operationalization of OT

Methodological problems concerning the operationalization of OT concern (1) a possible social desirability bias in the data and (2) the arbitrary determination of the dividing line between mechanistic and intermediate organizational types.

First, with respect to the social desirability bias, respondents tended to rate their own branches as more organic.[1] For example, the twenty-one Adjutant General's Corps officers rated their own branch 3.57

[1]Social desirability bias is defined here as the tendency of the average person to say good things about himself on self-inventories. (Nunnally, p. 479).

on the organizational type scale (higher scores are more organic), whereas the average rating of the Adjutant General's Corps by nineteen officers of other branches was 3.06. Also, six Infantry officers rated their own branch 4.33, whereas the average rating of Infantry by officers of other branches was 3.00. The influence of the bias would have been minimized had the sample been a more representative one.

Second, although the basis for assigning cases to the organic organizational type was based on statistically significant differences, the dividing line between mechanistic and intermediate types was arbitrarily determined (though based on relative average ranks) for both function and branch. One perhaps unfortunate result was that the function "Combat" was determined to be intermediate in organization type (mean score on the OT scales = 3.275), whereas the four combat branches (Air Defense Artillery, Armor, Field Artillery, and Infantry) were all determined to be mechanistic in organizational type (mean score on the OT scales = 3.106). One would think that the combat function would be rated at least as low as the mean score for the 4 combat branches. The arbitrary dividing point between mechanistic and intermediate organizational types may very well have confounded the research and may explain some of the contradictory findings.

Operationalization of CS

Operationalization of the leader behavior variable CS (consideration) was unsatisfactory, as indicated by item-total correlations and coefficient alpha. At least three of the items were negatively correlated

with the sum of all other items in the scale, indicating a problem with construct validity. Evidence was presented to suggest that this may have resulted from (1) an imbalance in the Army's questionnaire between items with positive connotations and items with negative connotations, (2) a built-in systematic bias in the arrangement of the Army's scales, and/or (3) evident heterogeneity of the CS dimension. Further evidence of inadequate construct validity of the derived CS instrument is the high correlation between CS and IS, since the two variables are conceptually independent.[1]

The low coefficient alpha for the CS variable suggests that the derived instrument cannot be depended upon to yield consistent results. It is concluded that, because of low construct validity and reliability, findings involving the CS variable should be accepted with a healthy skepticism.

Operationalization of SAT

Another problem that may confound the research concerns the operationalization of the dependent variable "satisfaction with leader performance," a problem that was introduced in Chapter IV. If some subjects evaluated leader performance with respect to how well the leaders helped the subordinate achieve his own personal goals, while others evaluated leader performance with respect to organizational goals, considerable doubt would be attached to the findings. Since the Army's data provide

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[1]This also casts an aura of doubt on the construct validity of the initiating structure variable. But the high intercorrelation, alone, does not appear to be a serious problem, as the phenomenon is a common occurrence in the research literature.

no means of determining which interpretation is correct for a given case, it must be assumed that, on the average, a high degree of integration of personal and organizational goals exists for the research sample. The conclusion provides further justification for limiting use of the present findings to the hypothesis formulation stage for further research.

Parametric Versus Nonparametric Analyses

Some of the conclusions described above are based on findings that resulted from application of parametric statistics to the research data. Since it has been shown that key research variables are not normally distributed, since there is at least the suspicion of heterogeneity of variance between treatments, and since the numbers of observations vary for the three types of organizations, inferences based on such statistics are dangerous.

However, the redundant nonparametric analyses seem to support, generally, the findings arrived at through the more informative parametric techniques: factorial analysis of variance, the Pearson product-moment partial correlation, and the Hays test for equal correlation. The only exception is the relation between satisfaction with leader performance and leader consideration when organizational type is based on function. Hence, where the parametric and nonparametric results are consistent, it is concluded that the more informative parametric findings (e.g., the Hays test for equal correlation) provide useful evidence bearing on the relationships examined. On the other hand, that one exception emphasizes the dangers inherent in unquestioning reliance on parametric statistics, regardless of the nature of the data.

Implications for Management

This section discusses the implications of the research findings for management. Because the research is exploratory in nature and because many methodological problems remain to be solved, the conclusions described above should be viewed as tentative, subject to verification by further research.

Implications for management are discussed in terms of (1) perceived differences in organizational type, (2) the direct effect of organizational type on subordinate satisfaction with leader performance, (3) the direct effect of leader behavior on the same variable, and (4) the moderating influence of organizational type on the leader behavior/subordinate satisfaction relationships.

Perceived Differences in Organizational Type

The finding that officers comprising the research sample perceive significant differences in the organizational type of five functional areas and nineteen branches of the Army has important implications for management, regardless of the reason(s) for the differences. The finding suggests that the Army is <u>not</u> one large, homogeneous organization for which standardized managerial techniques can be developed. As perceived by the sample of officers from the Administration Center, the functional areas and branches of the Army differ with respect to one or more of the following factors: (1) structure; (2) nature of tasks; (3) procedures, rules, and regulations; (4) definition of responsibility and authority; (5) decision making; and (6) performance emphasis. In effect the officers

of the research sample described the Army as a complex system composed of numerous differentiated subsystems having significantly different organizational characteristics.

If there are, indeed, significant differences in organizational characteristics of various Army subsystems (i.e., functions and branches) it behooves the Army to find out precisely how the subsystems differ and how the differentiated characteristics influence criteria of organizational effectiveness. It may very well be that the present system of generalized policies, regulations, and doctrine, while beneficial for certain subsystems, may be detrimental to the overall system.

A case in point is the Army's policy concerning rotation of personnel. While frequent rotation of managers under development programs is a common phenomenon in industry and commerce, the frequency of transfer is not nearly as great, nor is the practice as thoroughly institutionalized, as in the Army. The Army strives to expose officers to a wide cross-section of functional assignments including command and staff, combat units, service schools, military assistance advisory groups, Department of the Army staff, joint staff (headquarters of joint Army-Navy-Air Force commands), etc. Thus, officers of all branches are transferred from job to job under the assumption that managerial competence is readily transferable from one subsystem to another.

According to Mock, this rotational policy involves a tradeoff between (1) the development of " . . . highly competent commanders with broad experience to manage the larger and more complicated institutions . . ." and (2) " . . . the demand for expertise in a wide range of

extremely specialized areas."[1] However, the finding that the research sample perceived signficant differences in important characteristics of key subsystems of the Army suggests that the assumption of transferability of managerial competence may be an erroneous one. There may be no such thing as a universally competent manager who can quickly size up the internal and external environments of each new organization he encounters, unerringly identify the crucial variables, comprehend their interrelationships, and manipulate the controllable variables in such a way as to rapidly achieve managerial effectiveness. The Army may be too large, too complex, and too diverse for officers or the organization, to benefit from such a pervasive rotational policy. In other words there may be no real tradeoff between broad managerial competence and job expertise, and the rotational policy may be exacting high costs in terms of system and/or subsystem performance.

The fact that officers perceive significant differences in organizational characteristics of functional areas and branches of the Army points up a need for commanders and their staffs to seek new understanding concerning the differentiated subsystems that make up their organizations. In seeking new understanding, Army managers should examine the evolving contingency theories in organizational behavior, structure, and processes for ideas that may have relevance to their unique situations and that may enhance organizational effectiveness.[2]

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[1]Mock, pp. 50-65.

[2]See, for example, Burns and Stalker, Woodward, and Lawrence and Lorsch, cited in Chapter II.

The Direct Effect of Organizational Type

The evidence is trivial that there is a direct effect of organizational type on subordinate satisfaction with leader performance. If there is a relationship, it appears that officers tend to be somewhat less satisfied with their leaders' performances in mechanistic functions and more satisfied with their leaders' performances in the organic (research) function, with the intermediate functions in between. While the evidence for branch is weaker still, it appears that officers in organic branches tend to be slightly less satisfied than officers in mechanistic branches, again, with officers in intermediate branches in between. In the absence of any seemingly detrimental trends in important criterion variables (e.g., lower officer retention rates in mechanistic functions or organic branches) that might be related to the dependent variable of this research, it would be unwise for management to take measures to correct minor discrepancies. Such measures could result in dysfunctional consequences in other organizational effectiveness criteria, with little expectation of improving subordinate satisfaction with leader performance substantially.

The Direct Effect of Leader Behavior

The research provides strong evidence that subordinates who perceive their leader as being high on consideration and also high on initiating structure, will express high satisfaction with their leader's performance. The findings seem to validate traditional Army leadership

doctrine which holds that effective leaders emphasize the dual objectives of accomplishing the mission and taking care of the troops.

However, in view of the alternate interpretations of the findings discussed above (i.e., the lack of knowledge concerning cause and effect relationships and the possibility of a halo effect) management should retain a healthy skepticism about what consititutes the most appropriate leadership style. This is especially true in view of the ambiguity of the dependent variable, satisfaction with leader performance. It is not known whether respondents evaluated their leader's performance in terms of (1) mission accomplishment, (2) taking care of the troops, or (3) some combination of the two. Also, management must consider the effect of leader behavior on the other vital criteria of organizational effectiveness before settling on a common leadership doctrine.

The implication of the findings concerning the direct effect of leader behavior on subordinate satisfaction with leader performance is that further research is essential to clarify the questions raised above.

The Moderating Effect of Organizational Type

According to this research, it appears that organizational type, when operationalized by Army function, has little, if any, moderating effect on the relation between leader behavior and subordinate satisfaction with leader performance. However, organizational type does have a statistically significant influence on that relationship when branches of the Army are categorized according to mechanistic, intermediate, and organic types. Satisfaction with leader performance is apparently

associated with high leader consideration behaviors to a lesser degree by subordinates in organic branches than by subordinates in mechanistic or intermediate branches. Also, satisfaction with leader performance is less closely related to perceived leader structuring behaviors for officers in intermediate branches than for officers in organic branches. The results do, roughly, give some credence to the Path-Goal thesis, but the implications for management are not clear.

In the first place, the magnitude of the differences in correlation coefficients are small. For example, the arithmetic difference between the CS/SAT partial correlations for mechanistic branches and the same partials for organic branches is only .1591. Another way of expressing this is that in mechanistic branches 20.8 per cent of the variance of the satisfaction variable is attributable to consideration (or vice versa), while in organic branches the comparable figure is only 8.9 per cent. Given that one knows the cause and effect relationship, one still has to determine <u>how much</u> to vary the causal variable in order to produce the desired effect.

Assuming that leader consideration <u>causes</u> subordinate satisfaction, it cannot be inferred that leaders in organic branches should display a lower level of consideration, for very high levels may not be dysfunctional, merely superfluous with respect to the satisfaction of officers of organic branches. Even under this idealized assumption the research findings provide little guidance about <u>how</u> leaders should modify their behavior in order to influence subordinate satisfaction with leader performance. This is especially true in view of the fact that there are, no doubt, numerous

other criterion variables which may be differentially influenced by leader consideration and which are of great importance to management. Examples of attitudinal variables that may be differentially influenced by leader behavior are the numerous "facets" of subordinate satisfaction, while potential performance variables include overall effectiveness, productivity, efficiency, etc.[1]

Also, in view of the fact that Army field grade officers often have subordinates of several different branches, the leader may have to vary his consideration behavior for each subordinate, depending on the subordinate's branch, ceterus paribus. In effect, then, considerable additional research is necessary in order to convert the findings of this exploratory research into useful knowledge for management. If the cause and effect relationship is opposite to that assumed above, i.e., satisfaction with leader performance causes leader consideration, knowledge of the research findings has little practical value to management. There is little hope that management could successfully manipulate subordinate satisfaction with leader performance in the expectation of changing the leader's behavior, even if there was a good reason for trying.

In sum the major implication for management of this research is that the high consideration, high structure normative model of leadership may be too general for universal application. Indications are that for the dependent variable "satisfaction with leader performance" the appropriate mix of consideration and structuring behaviors depend to some

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[1]Campbell et al., Management Behavior, pp. 10-13.

extent upon whether the subordinate's branch of the Army is perceived as mechanistic, intermediate, or organic. The findings are strong enough to alert management to the realization that simple normative models of leadership are probably unrealistic and need to be replaced by relevant contingency models. This suggests that a twelfth principle be added to the Army's eleven "Principles of Leadership": Develop an understanding of the contingency factors that apply in your immediate leadership situation. (See Appendix A for a list of the Army's eleven principles).

However, because the specific contingency effects identified in this research are relatively small in magnitude, the findings of this exploratory research are not especially useful for management. Consequently, the implications are presented here more as caveats than as prescriptions for change.

The methodological problems evolving out of the ex post facto nature of the research may have diluted the moderating influence of organizational type. With clearer operational definitions, better measurement, and more representative samples, perhaps even organizational type based on function will prove to be a major contingency variable influencing the effectiveness of leader behavior. What is needed now is to examine these relationships in a more rigorous and systematic field study to (1) confirm their existence, (2) establish the causal directions, and (3) provide a basis for generalization of the findings.

One final implication concerns the finding about the lack of construct validity of three of the items comprising the consideration variable

used in this research. In Chapter V it was suggested that possible causes for the negative item-total correlations were (1) systematic bias in the arrangement of the scales in the Army's questionnaire and (2) the imbalance in the number of items having positive versus negative connotations in their wording. It is the researcher's opinion that the methodological problems thus exposed cast doubt on some of the conclusions and interpretations made by the Army from data based on the 1971 Army Leadership Questionnaire. Without a doubt those conclusions should be reevaluated and the questionnaire should be redesigned before it is used again.

The next section identifies further research needs highlighted by this study.

The Need for Further Research

The findings of this study suggest numerous areas that may prove fruitful in advancing the state of knowledge about the leadership phenomenon. These areas will be discussed below in terms of (1) the moderating effect of organizational type on leadership, and (2) the measurement of leadership variables.

The Moderating Effect of Organizational Type

This ex post facto, exploratory research provided some encouraging evidence in support of the idea that organizational type has a moderating effect on the relationship between leader behavior and subordinate satisfaction with leader behavior. However, the findings are far from conclusive. Methodological problems inherent in the ex post facto approach cast

a cloud of uncertainty over the findings. Therefore, it seems worthwhile to develop a more rigorous research design using the findings of the present study as bases for hypotheses to be tested.

Major changes ought to be incorporated in a short-run (assuming the use of existing instruments and methods) field survey to examine the moderating effect of organizational type in the U. S. Army. These short run changes are discussed below under the subheadings representativeness, operationalization of variables, determination of cause and effect, extension of the research, and control for hierarchical level.

Representativeness

In order to generalize from research findings it is essential that there be a reasonable degree of assurance that the attributes sampled are representative. The term representative means having " . . . approximately the characteristics of the population relevant to the research in question."[1] If, as in this research, the population of interest is officer subordinates of field grade officers in the U. S. Army, the random sample should be selected in such a way that every officer having the desired characteristics will have an equal chance of being queried. The Army Administration Center has within its existing personnel management system, routinized procedures for obtaining such random samples. With top level permission the system could furnish the necessary random samples. With a slight tradeoff in reliability, cluster sampling, in which clusters are based on subordinate branch

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[1]Kerlinger, p. 119.

and/or function, could be used to assure adequate representation of all branches and/or functions while minimizing the cost of the research.[1]

Operationalization of Variables

For the more rigorous research envisioned, substantial improvements need to be made in the operationalization of organizational type, leader behavior, and organizational effectiveness.

Organizational type. With respect to organizational type, the functional areas should be defined more precisely. The operational definitions should be expressed lucidly on the survey questionnaire in terms understandable to the target population. In order to reduce ambiguity and help achieve mutual exclusiveness of the functional areas to be described, it would be wise to increase the number of functional areas. For example, the education and training functional area might be better subdivided into basic military training, unit training, enlisted specialized individual training, and officer training categories because, based on the researcher's personal experience, organization characteristics differ substantially for units performing the different types of training. Several functional areas might be added for further clarity and comprehensiveness: military intelligence, engineering, medical, and project management, to name a few.

Finally, for the experimental replication of this study, the researcher should make an a priori determination of how the mechanistic, intermediate, and organic types will be distinguished (i.e., What scores will signify the dividing line between the mechanistic and intermediate

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[1]Freund and Williams, pp. 377-78.

types, and between the intermediate type and the organic type?). For example, it might be appropriate to categorize the most mechanistic, mutually exclusive, homogeneous subset of cases (based on a multiple comparison) as mechanistic; the next most mechanistic, mutually exclusive, homogeneous subset of cases as intermediate; and so forth. Such a decision rule, based on the findings of this research, might result in there being no organic group of cases to analyze, but the approach is intellectually appealing. A less rigorous approach would be to divide the organizational type scale into three equal segments and classify organizations accordingly.

Leader behavior. In addition to the organizational type variable, the leader behavior variables, consideration and initiating structure, need improvement. Because of the poor performance of the derived consideration variable and the improvised nature of both leader behavior variables as defined in this study, it is recommended that the LBDQ-Form XII instrument be used in future research, until a more suitable instrument is forthcoming. Whereas the LBDQ-Form XII instrument is deemed unsatisfactory when subjected to critical analysis, it appears to be the best instrument available at the present time for measuring leader behavior.[1] Its strengths and weaknesses are known and means and standard deviations for various groups of leaders are available for comparison.[2]

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[1]Schriesheim and Kerr, "Theories and Measures," p. 33.

[2]Stogdill, Manual for the LBDQ-Form XII, p. 8.

As a means of reducing halo, it is suggested that a truly trifocal measurement of the leader's behavior be obtained. The leader's behavior could be evaluated by (1) his immediate supervisor, (2) one of his peers, and (3) one of his subordinates and, thence, be analyzed in terms of the mean of the three perspectives.

Organizational Effectiveness. As discussed above measurement of organizational effectiveness was less than adequate. It was a univariate measure with ambiguous meaning, leaving some doubt about whether it measured leader satisfaction of subordinate needs, leader accomplishment of organizational goals, or some combination of the two. An experimental replication should remedy this problem by using multiple criteria of performance and subordinate satisfaction. Numerous good "well-researched" instruments are available for measuring various facets of individual satisfaction, including the Job Description Index and the Minnesota Satisfaction Questionnaire.[1]

In view of the wide range of activities engaged in by Army units probably the best measure of performance for an experimental study would be ratings of overall effectiveness. The mean of ratings of the overall effectiveness of the leader's work group, as evaluated by the leader's superior, one of his subordinates, and one peer, would probably provide as objective and universal a measure of global performance as is available at the present time. Such a trifocal measure would reduce (but not eliminate) the danger of halo in the data. In further justification for including a peer evaluation, there is considerable research suggesting

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[1]Campbell et al., Organizational Effectiveness, p. 77.

that peer ratings are valid predictors of leader performance, especially in military organizations.[1] Campbell describes several techniques for obtaining ratings of overall organizational effectiveness that might be applied in a more rigorous field study.[2]

Determination of Cause and Effect

In order to better explain the apparent moderating effect of organizational type on the leader behavior/organizational effectiveness relationship, it is vital that the research design provide for the determination of cause and effect. This suggests the need for a longtitudinal design in which observations of attitudes, behaviors, and performances of the same random sample of subjects are collected at two or more different points in time. Because of the Army's rotational policy, the time intervals between observations would, of necessity, be relatively short; perhaps as short as one month. Observations could then be compared using cross-lagged path analysis and dynamic correlation, the methodology used by Sheridan and colleagues in their imaginative test of the Path-Goal theory.[3]

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[1]Stanley B. Williams and Harold J. Leavitt, "Group Opinion as a Predictor of Military Leadership," Journal of Consulting Psychology 11 (Nov-Dec 1947): 283-91; and R. G. Downey et al., "Evaluation of a Peer Rating System for Predicting Subsequent Promotion of Senior Military Officers," Journal of Applied Psychology 61 (1976): 206-209.

[2]Campbell et al., Organizational Effectiveness, pp. 41-42.

[3]Sheridan et al., pp. 68-71.

Extension of Research

Assuming that the more rigorous research outlined will support the evidence discovered in the present study, the research should be extended, both within the Army and externally to other government and business organizations.

With respect to the Army, the research should be extended to the combat situation, for it is success in combat that is the ultimate criterion of military effectiveness. If the Army's leadership doctrine is based on research in peacetime, with emphasis on criterion variables such as satisfaction with supervision, satisfaction with pay, successful accomplishment of training, efficiency reports, etc., the wrong types of leaders may emerge. Such past emphasis may account, in part, for the typically high turnover rate of combat leaders during the early months of war. It seems likely that the highly considerate leader, who can be very successful in the peacetime Army, may have difficulty in making the hard combat decisions that require the acceptance of some "reasonable" level of casualties among members of his command in wartime.

Several questions need to be answered by further research. First, does the organizational type of a combat unit change (as, for instance, from intermediate to organic) as it moves from a peacetime training situation into frontline combat? Second, are findings concerning the moderating effect of organizational type in peacetime applicable in a combat situation? Are different combinations of consideration and initiating

structure behaviors appropriate in combat? Could it be that in the immediacy of combat, high initiating structure and low consideration behaviors are appropriate, but that when combat is not taking place or is not imminent, high initiating structure and high consideration (or perhaps even low structure and high consideration) are most effective? These questions need to be answered if the Army is to have confidence in its adopted leadership doctrine. The findings from this research raise a doubt as to whether or not a single doctrine is satisfactory for an organization involved in such widely diversified activities as the U. S. Army.

One of the main problems in gaining knowledge about combat leadership is that the urgency and hazards of war make military leaders reluctant to initiate scientific research in and around the battlefield. Once the fighting starts few military leaders have the time or inclination to worry about conducting research. S. L. A. Marshall's work, described previously in this study and consisting of after-action interviews, is a notable exception. The payoffs for the Army in terms of scientific knowledge about combat leadership could be tremendous. Systematic, well-planned leadership research during the early months of a war would be especially valuable with respect to the knowledge it would yield about the adequacy of peacetime leadership training. The Army should give serious consideration to developing (and maintaining in a state of operational readiness) a contingency plan for combat leadership research, a plan that could be implemented during the early stages of any future conflict and which would incorporate the latest knowledge about the leadership phenomenon.

Extension of this research into government and business organizations appears to be a logical subsequent step, after the results of the present study are confirmed in a more rigorous research design. Giant corporations, such as General Motors and General Electric, may be engaged in such widely diverse activities that the full spectrum of organizational types are represented. If more than one type is represented, it would be useful to determine if leader behavior/effectiveness relationships were significantly different for each type, and if so, in what way? Smaller, less diverse firms might be classified by organizational type and then studied to determine whether the observed leader behavior/effectiveness relationships are as might be expected for the given organizational type. Similar research would be appropriate in government agencies at the federal, state, and local levels.

Control for Hierarchical Level

There is an abundance of literature which suggests that hierarchical level influences, quite strongly, leader behavior in organizations. Hierarchical level was described as a significant influence in the hypothetical model of Katz and Kahn (the Three Pattern Approach) in which leadership behavior in the organization is oriented toward (1) the origination of structure at the highest level of organization, (2) interpolation, or the supplementing and piecing out of structure at the middle levels, and (3) administration, or the utilization of structure at the lower levels.[1] Mann, in his empirically supported Skill-Mix Theory, confirmed the

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[1]Katz and Kahn, pp. 312-19.

existence of a hierarchical influence, suggesting that there is an appropriate mix of technical, human relations, and administrative skills that differs depending on organizational level. For mature organizations, technical and human relations skills seemed to contribute most to effective performance at the lower levels, human relations skills at the middle level, and administrative skills at the highest levels.[1]

Heller and Yukl also found a contingent influence of hierarchical level on leadership style. They found that the higher the hierarchical level of the leader, the more participative he tended to be in his decision-making.[2] All three of the reviews of the literature on situational variables which influence leadership (cited in Chapter III) suggest hierarchical level as a possible moderator of the leadership behavior/effectiveness relationship.[3] All of this evidence is cited in support of the notion that further research on the moderating effect of organizational type should control for hierarchical level, a variable which seems to have a pervasive effect on the effectiveness of leader behavior. (The present research controlled for hierarchical level by examining the leader behavior/effectiveness relationship for the middle management level only).

For that matter any research on leadership, including micro studies on small group effectiveness, might best be compared and interpreted in terms of the framework for research suggested by Figure 6-1. The figure assumes, of course, that the influence of organizational type is stronger and, perhaps, more pervasive than is suggested by the findings of this study.

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[1]Floyd C. Mann, pp. 73-96. [2]Heller and Yukl, pp. 227-41

[3]Michaelsen, "Situational Conditions," p. 34; Kerr et al., pp. 67-68; and Barrow, "Leadership Effectiveness," p. 10.

However, it is felt that with better measurement and an improved research design, the importance of organizational type as a moderator of the leader behavior-organizational effectiveness relationship will be clearly established.

FIGURE 6-1

SUGGESTED FRAMEWORK FOR LEADERSHIP RESEARCH

Hierarchical Level	Organizational Type		
	Mechanistic (M)	Intermediate (I)	Organic (O)
Top Level (T)	MT	IT	OT
Middle Level (M)	MM	IM	OM
First Level (F)	MF	IF	OF

The implication of Figure 6-1 is that researchers should cease to look for universal theories relevant, without qualification, to the entire domain of leadership but should, instead, examine the leader behavior/effectiveness relationships for each cell of the matrix as unique and, perhaps, unrelated theories. This is because each of the cells seem to demand a somewhat different type of leader behavior. For example, Mann's research suggests that effective top echelon (cells MT, IT, and OT) managers display more planning, programming, and work organizing behaviors; effective managers at the first level (cells MF, IF, and OF) require high human relations ability (consideration). With respect to the organizational type dimension, the Lorsch and Morse work provides the suggestion that the

mechanistic (certain and programmable external environment) organizational type requires directive, boss-centered leadership behavior, whereas the organic (uncertain and complex external environment) requires participative, subordinate-centered leader behavior. The popular dimensions of leader behavior may not be comprehensive enough to cover the full range of leader behaviors implicit in Figure 6-1.

Also, the cells of the matrix seem to require different criteria of leader effectiveness. For the top levels of management (cells MT, IT, and OT) macro criteria of organizational effectiveness seem appropriate; i.e., company profitability, organization morale, customer satisfaction, cost of capital, etc. But at the first level (MF, IF, and OF), criteria relevant to the specific activity of each small work group are appropriate, such as satisfaction with supervision, manhours per unit, absenteeism, etc. In support of this idea the findings of Sheridan and Slocum suggest that at the operating level, employee satisfaction seems to cause improved performance, whereas satisfaction for managers seems to result from high performance.[1] Hence, employee satisfaction might be an appropriate criterion for the first level, but not for the middle levels. Whereas in the mechanistic organization (cells MT, MM, and MF) the emphasis may be on short-term criteria, (e.g., quarterly profitability, cost reduction, and efficiency), it may be more appropriate to evaluate organic organizations (cells OT, OM, and OF) in terms of more long-range criteria, such as the number of new

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[1]Sheridan and Slocum, pp. 159-72.

products introduced, the adaptability of the organization to changes in its relevant external environment, etc. Although numerous other contingency variables have been identified in the leadership literature, most are micro-situational variables that may prove to have even greater relevance and moderating influence when examined within the research framework of the macro variables organizational type and hierarchical level.

In order to make good utilization of the research framework described above, however, it appears essential that effort should be focused on some more basic research needs, particularly the measurement of leadership variables.

The Measurement of Leadership Variables

Kerlinger has written, "In general too little attention has been paid to the variables of research studies. Consequently, many studies have suffered from inadequate measurement."[1] If recent critiques of leadership research are valid, it appears that most leadership studies suffer from such a deficiency.

The Measurement of Leader Behavior

Despite several decades of research and the development of numerous instruments, the measurement of leader behavior remains a perplexing problem. For example, Schriesheim and Kerr have explored the psychometric properties of the various Ohio State leader behavior instruments for a number of years. They have also examined Fiedler's Least Preferred

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[1]Kerlinger, p. 491.

Co-Worker scale and the Michigan Four-Factor Theory scales with respect to " . . . (1) content validity, (2) internal consistency, (3) score stability, (4) construct validity, and (5) minimal contamination by extraneous response determinants (agreement response tendencies, social desirability, leniency, and halo)."[1] All three scales have been found wanting.

Schriesheim and Kerr, in a shocking denunciation of the state of leadership research, claim " . . . the leadership area is today without any instruments of demonstrated validity and reliability."[2]

Referring, also, to the inadequacy of existing leader behavior instruments, Green suggests that leader behaviors encompassed by existing instruments are, " . . . too few and too narrow in definition to be representative of . . ." the behaviors exhibited by individuals acting in leadership capacities.[3] His ideas are echoed by Campbell, who claims that " . . . two factors [consideration and initiating structure] simply cannot reflect the complexity of what leaders do."[4] Campbell's solution to both these problems (the lack of valid instruments and the

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[1]Schriesheim and Kerr, "Theories and Measures," p. 19.

[2]Ibid., p. 33. [3]Green, "Disenchantment," pp. 58-59.

[4]John P. Campbell, "The Cutting Edge of Leadership: An Overview," in Leadership: The Cutting Edge, p. 228.

narrowness of behavioral dimensions) is to place greater emphasis on " . . . defining, describing, and measuring leadership phenomena."[1]

While the Schriesheim and Kerr position seems extreme, it does seem essential that existing instruments (1) be expanded in terms of the breadth of leader behavior examined and (2) be improved with respect to their psychometric properties. What may very well be needed now is a concerted effort, on the grandiose scale of the original Ohio State studies, to develop an improved, high quality instrument.

In order to achieve the requisite reliability and validity, it may be necessary to develop separate instruments for each cell of the structural framework of Figure 6-1, in recognition of the unique kinds of behaviors that may be exhibited by leaders, depending on hierarchical level and/or organizational type. The tendency of researchers to use the various instruments without regard to powerful moderating variables may account, in part, for the unsatisfactory psychometric properties described by Schriesheim and Kerr. For example, consideration and initiating structure items may have different meanings to respondents at the top level versus respondents at the first level of supervision. The item "He was easy to understand" may have <u>deep</u> meaning to the former (i.e., easy to empathize with), whereas to the latter the item may mean simply that the leader communicated in clear and simple language.

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[1]Ibid., p. 234.

Whether or not a number of different instruments are needed, the development of reliable and valid measures of leader behavior is a basic research need for the leadership field. As Korman has stated, "The point is not that adequate measurement is 'nice.' It is necessary, crucial, etc. Without it, we have nothing."[1]

The Measurement of Leader Effectiveness

The same situation exists with respect to measures of leader effectiveness. However, except for criteria of employee satisfaction, considerably less research effort seems to have been devoted to the development of instruments for measuring organizational effectiveness than to development of leader behavior instruments. The situation appears traumatic in view of the fact that in order to develop normative models of any type in the domain of organizational theory, the researcher needs (1) a practical concept of what constitutes organizational effectiveness and (2) valid, reliable instruments with which to measure the appropriate effectiveness variables.

The traditional approach to measuring effective leadership is to apply convenient criteria of organizational effectiveness. If this approach is to be pursued, a useful conceptual basis is the Kilmann and Herden Model of Organizational Effectiveness, designed primarily as a model for evaluating the impact of organizational development interventions.[2] Figure 6-2 describes four components of overall organizational

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[1]Korman, "Contingency Approaches," p. 194.

[2]Ralph H. Kilmann and Richard P. Herden, "Towards A Systematic Methodology for Evaluating the Impact of Interventions on Organizational Effectiveness," Academy of Management Review 1 (July 1976): 87-98.

FIGURE 6-2

MODEL OF ORGANIZATIONAL EFFECTIVENESS

Internal Efficiency (Maximize Energy Output/Energy Input Units per manhour Return on investment Cost of goods sold Scrap per unit Sales per salesperson Sales per advertising dollar Inventory Cost	External Efficiency (Maximize Bargaining Position in Environmental Exchange) Cost of Capital Market share Cost of raw materials Labor cost Product price leadership New product development New market development
Internal Effectiveness (Maximize Member Motivation) Employee turnover Absenteeism Number of grievances Employee attitudes Organizational climate Employment committment Interpersonal relationships	External Effectiveness (Maximize Societal Satisfaction) Community satisfaction Satisfaction of suppliers Consumer satisfaction Ability to identify problems Ability to identify opportunities Social responsibility Quality of life Environmental impact

SOURCE: Kilmann and Herden, pp. 92-95.

effectiveness: internal efficiency, internal effectiveness, external efficiency, and external effectiveness. Numerous criterion variables are listed for each component. The authors suggest that " . . . organizational effectiveness is a multiplicative function of the four components."[1]

The model implies that the measurement of effective leadership at the top level of the organization, using the traditional approach, would

[1]Ibid., p. 94.

require application of appropriate criterion variables from all four components of the model. However, measurement at the lowest level would seem to require variables from the two internal components only, i.e., internal efficiency and internal effectiveness. For organizations of the mechanistic type, the measurement might be weighted in favor of the internal components, whereas for organizations of the organic type, the external components might be emphasized. It seems reasonable to believe that a generalized instrument of acceptable validity and reliability could be developed for each of the nine cells of the research framework of Figure 6-1.

The multivariate methodology used by Mahoney and Weitzel in their search for universal criteria of organizational effectiveness might serve as a procedural model for the development of nine "contingency" instruments.[1] Those researchers identified 24 dimensions which " . . . appear to provide a reasonable explanation of organizational effectiveness in varied organizational settings." A "general business model" used only four dimensions: (1) productivity-support-utilization, (2) planning, (3) reliability, and (4) initiative (a total of 25 questionnaire items) to predict most of the variances in judgments of managers in 283 organizations about "ultimate" overall organizational effectiveness.[2] A "research and development model" did the same thing but with three different

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[1]Thomas A. Mahoney amd William Weitzel, "Managerial Model of Organizational Effectiveness," Administrative Science Quarterly 14 (1969): 357-65.

[2]For more detail on the dimensional analysis, see Thomas A. Mahoney, "Managerial Perceptions of Organizational Effectiveness," Management Science 14 (October 1967): B76-B91.

dimensions: (1) reliability, (2) cooperation, and (3) development (a total of 16 questionnaire items). One explanation offered by the researchers to account for differences in the two models relates to the organizational typology used in the present study. That is, the general business model is appropriate for the mechanistic type of organization, whereas the research and development model applies to the organic type.[1] There seems little reason to doubt that the Mahoney and Weitzel methodology could be used to develop "measurable organizational characteristics" that can serve as " . . . operational short-run substitutes for the more subjective, long-run ultimate criterion of organizational effectiveness," for all nine cells of the research framework suggested by Figure 6-1.[2]

The traditional approach to identifying effective leadership, however, is inappropriate according to Campbell. This is because leadership accounts for only a small fraction of objective measures of performance such as productivity, sales, absenteeism, etc. Campbell suggests that the focus should be on " . . . the observable behavior of the followers that could 'reasonably' be expected to be influenced by the leader in a face-to-face situation."[3]

To operationalize this idea, the Mahoney and Weitzel methodology could be used to identify dimensions of subordinate behavior that predict experienced managers' judgments of long range organizational effectiveness. These dimensions could then be used as dependent variables in subsequent

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[1]Mahoney and Weitzel, p. 363. [2]Ibid., p. 357.

[3]John P. Campbell, p. 233.

leadership research. This approach should be especially valuable if pursued within the research framework of Figure 6-1.

Both of the approaches described above, the traditional approach (emphasizing criteria of organizational effectiveness appropriate for the given hierarchical level and organizational type) and Campbell's proposed approach (identifying appropriate effectiveness-related behaviors of subordinates) should probably be pursued simultaneously. Further progress in understanding the leadership phenomenon depends largely upon progress in developing measures of effective leadership.

The Measurement of Organizational Type

Another variable for which better measurement is needed in order to pursue the line of investigation suggested by this research is the variable organizational type. Not only is further work in the area necessary for expanding the frontiers of knowledge about leadership, but it is also vital for the entire domain of the theory of organizations. It is a logical extension of the Burns and Stalker, Woodward, Lawrence and Lorsch, Kast and Rosenzweig, and Lorsch and Morse sequence of investigation and theory. The importance of this line of research was emphasized by Pugh and his colleagues in justification of their search for common dimensions of organizational structure that could be used in comparative studies:

> A major task of contemporary organization theory is the development of more sophisticated conceptual and methodological

tools, particularly for dealing systematically with variations between organizations.[1]

Operationalization of the concept of organizational type is a step in the right direction. As operationalized in this research, however, the variable is less than satisfactory, based as it is on the perceptions of organizational members. Such a measure is highly subjective and, as suggested by the data from the research, highly vulnerable to response tendencies, such as social desirability. Respondents do not have adequate knowledge of, or experience in, the various organizations being evaluated; consequently they can scarcely be considered qualified to provide reliable and valid responses. At best, organizational type, as operationalized in this research, served as a temporary surrogate for a concept that deserves more objective treatment.

There seem to be several alternatives that might be considered to meet this research need. First, an existing instrument could be mobilized for this purpose. One prospect that comes immediately to mind is the Likert instrument for comparing management systems.[2] The characteristics of System 1 seem to describe the mechanistic organizational type quite well, System 4 the organic type, while Systems 2 and 3 might suffice for the intermediate category (or might be treated as distinct types in themselves). But the Likert instrument, while much more comprehensive than the instrument used in this research, suffers from many of the same

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[1]D. S. Pugh et al., "Dimensions of Organizational Structure," Administrative Science Quarterly 13 (June 1968): 65.

[2]Likert, Human Organization, pp. 3-12; 196-211.

deficiencies, based as it is on subordinates' perceptions of organizational characteristics. Also, the characteristics measured are organizational processes (neglecting structure), which limits the descriptive capabilities of the instrument.

Another possibility is to adapt the instrument developed by Pugh and associates for measuring dimensions of organizational structure.[1] The scales comprising that instrument seems to tap many of the characteristics that differentiate mechanistic and organic organizations, although the focus is on the dimensions "structuring of activities," "concentration of authority," and "line control of work flow."[2] The scales were designed to minimize the influence of member "perceptions of their organizations," and, consequently, provide a relatively objective basis for categorizing organizations.[3] The taxonomy that was developed, as a result of the researchers' work with the instrument in 52 British organizations, could be used as a basis for categorization by organizational type.

Within that taxonomy the structural type "Full Bureaucracy" describes an organization high on structuring of activities, high on concentration of authority, but low on line control of workflow (operators and first-line supervisors have little control over the flow of work). Such an organization would seem to be mechanistic in nature whereas the "Implicitly Structured" type is decidedly organic (low on structuring of

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[1]Pugh et al., "Dimensions," pp. 65-105.

[2]Pugh et al., "An Empirical Taxonomy of Structures of Work Organizations," Administrative Science Quarterly 14 (March 1969): 115-26.

[3]Pugh et al., "Dimensions," p. 69.

activities, low on concentration of authority, and high on line control of workflow.)[1] The other types of organizations described by the taxonomy (Nascent Full Bureaucracy, Workflow Bureaucracy, Nascent Workflow Bureaucracy, Preworkflow Bureaucracy, and Personnel Bureaucracy) might be treated as intermediate types. The disadvantage of using this taxonomy of organizations as a surrogate for organizational type is its overemphasis on structural characteristics and neglect of process variables.

The best way to operationalize the concept of organizational type would be to develop individual scales to measure each characteristic identified by Kast and Rosenzweig in their contingency model.[2] The scales should be designed to minimize, as much as possible, the influence of member perceptions. Data would be required from a large number of dissimilar organizations to reduce the distinguishing characteristics to a relatively small number of dimensions, using techniques similar to those of Pugh and colleagues. Following their methodology a taxonomy of organizational types, from mechanistic to organic, would be developed that would be invaluable for organizational theorists. The disadvantages of this approach is the grandiose scale of research effort required. The project would be costly, would require a highly skilled research team, and would require years to complete. Such an improvement in the measurement of organizational type, coupled with improvements in the measurement of leader behavior and leader

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[1]Pugh et al., "An Empirical Taxonomy," pp. 120-23.

[2]Kast and Rosenzweig, "Contingency Views," pp. 305-20.

effectiveness would, however, provide a solid foundation for accelerated growth in knowledge about the phenomenon of leadership.

Summary

This chapter provided the conclusions, implications, and research recommendations stemming from this ex post facto exploratory research on leadership in the U. S. Army. In answer to the research question "Does the Army embrace a range of organizational types?" the evidence seems to be affirmative. Analysis of data selected from a non-random sample of officers provided evidence suggesting that officers do perceive signficant differences in the organizational type of Army functions and branches, although there are other possible explanations for the findings.

With respect to the research question "Does organizational type have a moderating influence on the relationship between leadership style and organizational effectiveness?" the evidence is mixed. Comparison of partial correlation coefficients for satisfaction and the two leader behavior variables for mechanistic, intermediate, and organic organizations suggests that there is a moderating influence when organizational type is determined by branch. Subordinate satisfaction with leader performance is less highly associated with leader consideration in organic type organizations than in either mechanistic or intermediate types. Also, satisfaction with leader performance is less highly associated with leader structuring behaviors in intermediate type organizations than in the organic type. The evidence was not conclusive because there were other plausible

explanations for the findings. When organizational type was determined by function, there was no significant moderating effect.

The analysis also provided evidence supporting the generalization that the best style of leadership is the high consideration, high initiating structure style. But, again the evidence is not conclusive because there are plausible alternative explanations and because the research design did not permit determination of cause and effect.

Because of methodological problems involving the lack of representativeness of data and the operationalization of organizational type, consideration, and satisfaction with leader performance, it was concluded that the findings of this research should not be generalized, but should be viewed as bases for hypotheses for further research. Also, although the nonparametric analyses generally supported findings arrived at through parametric techniques, the one exception emphasizes the dangers inherent in overdependence on the more versatile parametric statistics, when the normal assumptions associated with those statistics are violated.

The implications of this research for the Army is that its centralized system of policies, regulations, and doctrine may be suboptimal for the system as a whole, since the organization is apparently perceived as consisting of many diverse subsystems that differ with respect to numerous characteristics. Army managers need to develop new understanding concerning their organizations and the many contingency relationships that may affect those organizations in different ways.

With respect to leadership, there is some evidence that in organic organizations less consideration behavior is appropriate, while in intermediate types less initiating structure is best. However, since (1) the magnitude of differences is very small, (2) the cause and effect relationships are not known, and (3) only one criterion (dependent) variable was examined, the Army should continue to place equal emphasis on mission accomplishment and welfare of the troops in leadership development programs. However, the findings of this research suggest that the final verdict is not in, and that further research is needed.

A more rigorous field study is needed to test the findings of this research pertaining to leadership in the Army. A revised research design should provide for better representation, improved operationalization of variables, and determination of cause and effect. A logical step, following the more rigorous Army study (assuming confirmation of the findings of this study), would be to extend the research into business and government organizations. Further, because of the tremendous importance of the criterion variable "combat performance", the Army should prepare and maintain in a state of continual readiness, a research design that could be applied to field units deployed in battle shortly after the outbreak of any future war.

More generally, a framework for the conduct of leadership research is suggested to control for moderating effects of two macro organizational variables, organizational type and hierarchical level. The potentially powerful effects of these two variables may require as many as

nine distinct theories of leadership, each requiring unique measures of leader behavior and effectiveness.

Also, if leadership knowledge is to be advanced, it is imperative that greatly improved instruments be developed to measure leader behavior and leader effectiveness. Because of the growing relevance of the concept of organizational type to all domains of organizational theory, it is vital that research be initiated to develop a more valid and reliable instrument for differentiating the characteristics of mechanistic, intermediate, and organic organizations. Suggestions were presented as to how these improved instruments might be developed.

Since World War II much has been learned about the leadership phenomenom, in spite of the absence of good instruments. Particularly revealing have been the findings concerning the existence of many contingency variables. However, it is now time to update research technology. More refined tools are needed than those yielded by the abundant research harvest of the Michigan and Ohio State studies. Concentration of research effort on the development of improved instruments will provide the solid foundation needed for advancement into a Golden Age for leadership research.

APPENDIX A

PRINCIPLES OF LEADERSHIP

PRINCIPLES OF LEADERSHIP[1]

1. Be technically and tactically proficient.
2. Know yourself and seek self-improvement.
3. Know your men and look out for their welfare.
4. Keep your men informed.
5. Set the example.
6. Insure the task is understood, supervised, and accomplished.
7. Train your men as a team.
8. Make sound and timely decisions.
9. Develop a sense of responsibility among subordinates.
10. Employ your command in accordance with its capabilities.
11. Seek responsibility and take responsibility for your actions.

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[1]U. S. Dept. of the Army, Leadership for the 1970's, p. 17; Carter, pp. 14-18.

APPENDIX B

CONARC LEADERSHIP QUESTIONNAIRE

LEADERSHIP FOR
PROFESSIONALS

LEADERSHIP QUESTIONNAIRE

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We are asking your help in a study which seeks to determine the attitudes and opinions of members of the United States Army with respect to leadership. We need your personal opinions. We plan to gather data through your answers to these questions. The answers you give in this study will be entirely confidential and your signature or identification is not required. Your cooperation and frank response will be a major contribution in identifying leadership problems and potential solutions.

LEADERSHIP STUDY

Part I of this study requests data concerning yourself. Most of the questions in this study are answered by circling an appropriate response number, as illustrated by the example below. Please respond to every question in all parts of the study.

EXAMPLE:

SEX (circle)

(1.) Male
2. Female

PART I

1. AGE (circle)

   1. 17-21
   2. 22-28
   3. 29-35
   4. 36-45
   5. Over 45

2. SEX (circle)

   1. Male
   2. Female

3. GRADE (circle)

   1. E1
   2. E2
   3. E3
   4. E4
   5. E5
   6. E6
   7. E7
   8. E8
   9. E9
   10. I am a Warrant or Commissioned Officer

4. GRADE (circle)

   1. W1 or W2
   2. W3 or W4
   3. O1
   4. O2
   5. O3
   6. O4
   7. O5

4. GRADE (circle) (continued)

8. 06
9. 07+
10. I am an Enlisted Man

5. TOTAL YEARS ACTIVE SERVICE (circle)

1. Under 2
2. Over 2 but less than 5
3. Over 5 but less than 10
4. Between 10 and 20
5. Over 20

6-7. BRANCH (circle)

1. ADA
2. AGC
3. ARMOR
4. CH
5. CMLC
6. CE
7. FA
8. FC
9. INF
10. JAGC
11. MC
12. MI
13. MPC
14. MSC
15. OrdC
16. QMC
17. SigC
18. TC
19. WAC
20. I am an Enlisted Man or Aviation Warrant Officer

8. PMOS

1. _____ (Enlisted Men Only)
2. Does not apply--I am an Officer
3. Does not apply--I am an Aviation Warrant Officer

9. RACE (circle)

1. American Indian
2. Caucasian (White)
3. Negro (Black)
4. Oriental
5. Other

10. MARITAL STATUS (circle)

1. Single
2. Married
3. Separated
4. Divorced
5. Widow(er)

11. WHERE DID YOU LIVE MOST OF YOUR LIFE PRIOR TO ENTERING THE ARMY? (circle)

1. Farm
2. Small town (under 5,000 people)
3. Small city (5,000-75,000 people) or suburb of small city
4. Medium city (75,000-500,000 people) or suburb of medium city
5. Large city (over 500,000 people) or suburb of large city

12. IN WHAT PART OF THE COUNTRY DID YOU LIVE MOST OF YOUR LIFE PRIOR TO ENTERING THE ARMY? (circle)

1. Northeast
2. North Central
3. South
4. Midwest
5. Southwest
6. Far West
7. Other

13. WHAT WAS THE APPROXIMATE ANNUAL INCOME OF YOUR FAMILY (OR PRINCIPAL MEANS OF SUPPORT) BEFORE ENTERING THE ARMY?(circle)

1. Less than $3,000
2. $3,000 to $5,000
3. $5,000 to $8,000
4. $8,000 to $12,000
5. Over $12,000
6. I don't know

14. WHAT IS THE HIGHEST LEVEL OF CIVILIAN EDUCATION YOU HAVE COMPLETED? (circle)

1. Eight years or less
2. Completed some high school
3. Graduated from high school
4. Completed some college
5. Graduated from college
6. Masters degree or higher

15. HOW DID YOU ENTER THE ARMY? (circle)

1. Volunteer
2. Draftee
3. Does not apply--Entered the Army as an officer

16. WHAT WAS THE SOURCE OF YOUR COMMISSION? (circle)

1. USMA
2. ROTC
3. OCS
4. Direct
5. Other
6. Does not apply--I am an Enlisted Man

17. Consider the many different units in the Army. Based on recent assignments and experience, IN WHAT ONE OF THESE UNITS DO YOU CONSIDER YOURSELF TO BE MOST KNOWLEDGEABLE? (circle only one)

1. Squad or equivalent
2. Platoon or equivalent
3. Company or equivalent
4. Battalion or equivalent
5. Brigade or equivalent
6. Division
7. Corps or higher
8. Not applicable to me
9. I am not knowledgeable in any of the above

PART II

The following series of questions relate to the actions of your immediate superior in your present assignment. For this part of the study, try as nearly as possible to recall the situation and conditions as they exist and answer the questions to the best of your ability. There are no right or wrong answers to these questions. We are interested in your opinions and ideas.

Section I requests some basic data relating to your present unit, your duty assignment, and to your superior in that assignment.

Section I.

1. My present duty assignment is with (type of unit; for example, infantry company, artillery battery, battalion headquarters, etc.)_____

_____

2. Type and location of unit. (circle)

1. CONUS (TOE-operational unit)
2. CONUS (training base)
3. CONUS (other)
4. Europe (TOE-operational unit)
5. Europe (other)
6. SETAF
7. USARAL (TOE-operational unit)
8. USARAL (other)
9. USARSO (TOE-operational unit)
10. USARSO (other)
11. Korea (TOE-operational unit)
12. Korea (other)

3. The grade/rank of my immediate superior is: (circle)

1.	E1	11.	W2
2.	E2	12.	W3
3.	E3	13.	W4
4.	E4	14.	O1
5.	E5	15.	O2
6.	E6	16.	O3
7.	E7	17.	O4
8.	E8	18.	O5
9.	E9	19.	O6
10.	W1	20.	O7 or Higher

4. The position of my superior is (Platoon Sergeant, Battery Commander, Battalion S1, Brigade Signal Officer, etc.)_____

_____

Section II.

This section consists of a series of statements which indicate in one way or another the leadership abilities and personality of your superior. For each statement you are asked to answer three (3) questions: (1) the frequency with which your superior actually accomplishes the action indicated; (2) the frequency with which you think your superior should accomplish the action indicated; and (3) how important the action is to you.

Please circle the number opposite the word or phrase under each question which most closely reflects your opinion or attitude. BE SURE TO ANSWER ALL THREE QUESTIONS AFTER EACH STATEMENT.

EXAMPLE:

"HE IS COURTEOUS IN HIS ACTIONS."

(1) How often is he?		(2) How often should he be?		(3) How important is this to you?	
Always	7	Always	(7)	Critical	7
Almost Always	6	Almost Always	6	Very Important	(6)
Frequently	(5)	Frequently	5	Important	5
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Seldom Important	3
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Never	1	Never	1	Unimportant	1

"HE LETS THE MEMBERS OF HIS UNIT KNOW WHAT IS EXPECTED OF THEM" (IS1).

(1) How often does he?		(2) How often should he?		(3) How important is this to you?	
Always	7	Always	7	Critical	7
Almost Always	6	Almost Always	6	Very Important	6
Frequently	5	Frequently	5	Important	5
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Seldom Important	3
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Never	1	Never	1	Unimportant	1

"HE IS EASY TO UNDERSTAND" (CS2).

(4) How often is he?		(5) How often should he be?		(6) How important is this to you?	
Without Exception	7	Always	7	Critical	7
Quite Often	6	Almost Always	6	Very Important	6
Often	5	Frequently	5	Important	5
Occasionally	4	Sometimes	4	Sometimes Important	4
Once in Awhile	3	Infrequently	3	Seldom Important	3
Seldom	2	Almost Never	2	Relatively Unimportant	2
Not at All	1	Never	1	Unimportant	1

"HE TRAINED AND DEVELOPED HIS SUBORDINATES."

(7) To what extent does he do this?		(8) To what extent should he do this?		(9) How important is this to you?	
A Great Deal	7	Without Exception	7	Critical	7
Usually	6	Quite Often	6	Very Important	6
Most of the Time	5	Often	5	Important	5
Now and Then	4	Occasionally	4	Sometimes Important	4
Hardly Ever	3	Once in Awhile	3	Seldom Important	3
Rarely	2	Seldom	2	Relatively Unimportant	2
Not Ever	1	Not at All	1	Unimportant	1

"HE EXPRESSES APPRECIATION WHEN A SUBORDINATE DOES A GOOD JOB" (CS4).

(10) How often does he?		(11) How often should he?		(12) How important is this to you?	
Without Exception	7	Always	7	Critical	7
Quite Often	6	Almost Always	6	Very Important	6
Often	5	Frequently	5	Important	5
Occasionally	4	Sometimes	4	Sometimes Important	4
Once in Awhile	3	Infrequently	3	Seldom Important	3
Seldom	2	Almost Never	2	Relatively Unimportant	2
Not at All	1	Never	1	Unimportant	1

"HE IS WILLING TO MAKE CHANGES IN WAYS OF DOING THINGS" (CS5).

(13) How often is he?		(14) How often should he be?		(15) How important is this to you?	
Always	7	Always	7	Critical	7
Almost Always	6	Almost Always	6	Very Important	6
Frequently	5	Frequently	5	Important	5
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Seldom Important	3
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Never	1	Never	1	Unimportant	1

"HE TAKES APPROPRIATE ACTION ON HIS OWN."

(16) How often does he?		(17) How often should he?		(18) How important is this to you?	
Not Ever	1	Never	1	Unimportant	1
Rarely	2	Almost Never	2	Relatively Unimportant	2
Hardly Ever	3	Infrequently	3	Seldom Important	3
Now and Then	4	Sometimes	4	Sometimes Important	4
Most of the Time	5	Frequently	5	Important	5
Usually	6	Almost Always	6	Very Important	6
A Great Deal	7	Always	7	Critical	7

"HE IS THOUGHTFUL AND CONSIDERATE OF OTHERS."

(19) How often is he?		(20) How often should he be?		(21) How important is this to you?	
Without Exception	7	A Great Deal	7	Unimportant	1
Quite Often	6	Usually	6	Relatively Unimportant	2
Often	5	Most of the Time	5	Seldom Important	3
Occasionally	4	Now and Then	4	Sometimes Important	4
Once in Awhile	3	Hardly Ever	3	Important	5
Seldom	2	Rarely	2	Very Important	6
Not at All	1	Not Ever	1	Critical	7

"HE OFFERS NEW APPROACHES TO PROBLEMS" (IS8).

(22) To what extent does he do this?		(23) To what extent should he do this?		(24) How important is this to you?	
A Great Deal	7	A Great Deal	7	Unimportant	1
Usually	6	Usually	6	Relatively Unimportant	2
Most of the Time	5	Most of the Time	5	Seldom Important	3
Now and Then	4	Now and Then	4	Sometimes Important	4
Hardly Ever	3	Hardly Ever	3	Important	5
Rarely	2	Rarely	2	Very Important	6
Not Ever	1	Not Ever	1	Critical	7

"HE COUNSELS HIS SUBORDINATES."

(25) To what extent does he do this?		(26) To what extent should he do this?		(27) How important is this to you?	
A Great Deal	7	Without Exception	7	Unimportant	1
Usually	6	Quite Often	6	Relatively Unimportant	2
Most of the Time	5	Often	5	Seldom Important	3
Now and Then	4	Occasionally	4	Sometimes Important	4
Hardly Ever	3	Once in Awhile	3	Important	5
Rarely	2	Seldom	2	Very Important	6
Not Ever	1	Not at All	1	Critical	7

"HE SETS HIGH STANDARDS OF PERFORMANCE" (IS10).

(28) How often does he?		(29) How often should he?		(30) How important is this to you?	
Always	7	Always	7	Unimportant	1
Almost Always	6	Almost Always	6	Relatively Unimportant	2
Frequently	5	Frequently	5	Seldom Important	3
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Important	5
Almost Never	2	Almost Never	2	Very Important	6
Never	1	Never	1	Critical	7

"HE IS TECHNICALLY COMPETENT TO PERFORM HIS DUTIES."

(31) How often is he?		(32) How often should he be?		(33) How important is this to you?	
A Great Deal	7	A Great Deal	7	Critical	7
Usually	6	Usually	6	Very Important	6
Most of the Time	5	Most of the Time	5	Important	5
Now and Then	4	Now and Then	4	Sometimes Important	4
Hardly Ever	3	Hardly Ever	3	Seldom Important	3
Rarely	2	Rarely	2	Relatively Unimportant	2
Not Ever	1	Not Ever	1	Unimportant	1

"HE APPROACHES EACH TASK IN A POSITIVE MANNER."

(34) How often does he?		(35) How often should he?		(36) How important is this to you?	
Without Exception	7	Always	7	Critical	7
Quite Often	6	Almost Always	6	Very Important	6
Often	5	Frequently	5	Important	5
Occasionally	4	Sometimes	4	Sometimes Important	4
Once in Awhile	3	Infrequently	3	Seldom Important	3
Seldom	2	Almost Never	2	Relatively Unimportant	2
Not at All	1	Never	1	Unimportant	1

"HE CONSTRUCTIVELY CRITICIZES POOR PERFORMANCE" (IS13).

(37) How often does he?		(38) How often should he?		(39) How important is this to you?	
Without Exception	7	Without Exception	7	Unimportant	1
Quite Often	6	Quite Often	6	Relatively Unimportant	2
Often	5	Often	5	Seldom Important	3
Occasionally	4	Occasionally	4	Sometimes Important	4
Once in Awhile	3	Once in Awhile	3	Important	5
Seldom	2	Seldom	2	Very Important	6
Not at All	1	Not at All	1	Critical	7

"HE ASSIGNS IMMEDIATE SUBORDINATES TO SPECIFIC TASKS" (IS14).

(40) To what extent does he?		(41) To what extent should he?		(42) How important is this to you?	
A Great Deal	7	A Great Deal	7	Unimportant	1
Usually	6	Usually	6	Relatively Unimportant	2
Most of the Time	5	Most of the Time	5	Seldom Important	3
Now and Then	4	Now and Then	4	Sometimes Important	4
Hardly Ever	3	Hardly Ever	3	Important	5
Rarely	2	Rarely	2	Very Important	6
Not Ever	1	Not Ever	1	Critical	7

"HE IS WILLING TO SUPPORT HIS SUBORDINATES."

(43) How often is he?		(44) How often should he be?		(45) How important is this to you?	
Without Exception	7	Without Exception	7	Critical	7
Quite Often	6	Quite Often	6	Very Important	6
Often	5	Often	5	Important	5
Occasionally	4	Occasionally	4	Sometimes Important	4
Once in Awhile	3	Once in Awhile	3	Seldom Important	3
Seldom	2	Seldom	2	Relatively Unimportant	2
Not at All	1	Not at All	1	Unimportant	1

"HE KNOWS HIS MEN AND THEIR CAPABILITIES."

(46) To what extent does he?		(47) To what extent should he?		(48) How important is this to you?	
Without Exception	7	Without Exception	7	Critical	7
Quite Often	6	Quite Often	6	Very Important	6
Often	5	Often	5	Important	5
Occasionally	4	Occasionally	4	Sometimes Important	4
Once in Awhile	3	Once in Awhile	3	Seldom Important	3
Seldom	2	Seldom	2	Relatively Unimportant	2
Not at All	1	Not at All	1	Unimportant	1

"HE IS APPROACHABLE" (CS17).

(49) How often is he?		(50) How often should he be?		(51) How important is this to you?	
Always	7	Always	7	Unimportant	1
Almost Always	6	Almost Always	6	Relatively Unimportant	2
Frequently	5	Frequently	5	Seldom Important	3
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Important	5
Almost Never	2	Almost Never	2	Very Important	6
Never	1	Never	1	Critical	7

"HE GIVES DETAILED INSTRUCTIONS ON HOW THE JOB SHOULD BE DONE" (IS18).

(52) How often does he?		(53) How often should he?		(54) How important is this to you?	
Always	7	Always	7	Critical	7
Almost Always	6	Almost Always	6	Very Important	6
Frequently	5	Frequently	5	Important	5
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Seldom Important	3
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Never	1	Never	1	Unimportant	1

"HE STANDS UP FOR HIS SUBORDINATE EVEN THOUGH IT MAKES HIM UNPOPULAR WITH HIS SUPERIOR" (CS19).

(55) To what extent does he?		(56) To what extent should he?		(57) How important is this to you?	
Without Exception	7	Without Exception	7	Unimportant	1
Quite Often	6	Quite Often	6	Relatively Unimportant	2
Often	5	Often	5	Seldom Important	3
Occasionally	4	Occasionally	4	Sometimes Important	4
Once in Awhile	3	Once in Awhile	3	Important	5
Seldom	2	Seldom	2	Very Important	6
Not at All	1	Not at All	1	Critical	7

"HE LETS SUBORDINATES SHARE IN DECISION MAKING."

(58) How often does he?		(59) How often should he?		(60) How important is this to you?	
A Great Deal	7	A Great Deal	7	Critical	7
Usually	6	Usually	6	Very Important	6
Most of the Time	5	Most of the Time	5	Important	5
Now and Then	4	Now and Then	4	Sometimes Important	4
Hardly Ever	3	Hardly Ever	3	Seldom Important	3
Rarely	2	Rarely	2	Relatively Unimportant	2
Not Ever	1	Not Ever	1	Unimportant	1

"HE CRITICIZES A SPECIFIC ACT RATHER THAN AN INDIVIDUAL" (CS21).

(61) How often does he?		(62) To what extent should he?		(63) How important is this to you?	
Without Exception	7	A Great Deal	7	Critical	7
Quite Often	6	Usually	6	Very Important	6
Often	5	Most of the Time	5	Important	5
Occasionally	4	Now and Then	4	Sometimes Important	4
Once in Awhile	3	Hardly Ever	3	Seldom Important	3
Seldom	2	Rarely	2	Relatively Unimportant	2
Not at All	1	Not Ever	1	Unimportant	1

"HE SEES THAT SUBORDINATES HAVE THE MATERIALS THEY NEED TO WORK WITH."

(64) To what extent does he?		(65) To what extent should he?		(66) How important is this to you?	
A Great Deal	7	A Great Deal	7	Unimportant	1
Usually	6	Usually	6	Relatively Unimportant	2
Most of the Time	5	Most of the Time	5	Seldom Important	3
Now and Then	4	Now and Then	4	Sometimes Important	4
Hardly Ever	3	Hardly Ever	3	Important	5
Rarely	2	Rarely	2	Very Important	6
Not Ever	1	Not Ever	1	Critical	7

"HE RESISTS CHANGES IN WAYS OF DOING THINGS" (CS23).

(67) How often does he?		(68) How often should he?		(69) How important is this to you?	
Without Exception	1	Without Exception	1	Critical	7
Quite Often	2	Quite Often	2	Very Important	6
Often	3	Often	3	Important	5
Occasionally	4	Occasionally	4	Sometimes Important	4
Once in Awhile	5	Once in Awhile	5	Seldom Important	3
Seldom	6	Seldom	6	Relatively Unimportant	2
Not at All	7	Not at All	7	Unimportant	1

"HE REWARDS INDIVIDUALS FOR A JOB WELL DONE" (CS24).

(70) How often does he?		(71) How often should he?		(72) How important is this to you?	
A Great Deal	7	Always	7	Critical	7
Usually	6	Almost Always	6	Very Important	6
Most of the Time	5	Frequently	5	Important	5
Now and Then	4	Sometimes	4	Sometimes Important	4
Hardly Ever	3	Infrequently	3	Seldom Important	3
Rarely	2	Almost Never	2	Relatively Unimportant	2
Not Ever	1	Never	1	Unimportant	1

PLEASE DO NOT BE DISTRACTED BY THE CHANGE IN NUMBERING. THIS IS ONLY FOR THE BENEFIT OF THE AUTOMATIC DATA PROCESSING PERSONNEL WHO WILL PUNCH THE CARDS FOR THE COMPUTER.

"HE SEEKS ADDITIONAL AND MORE IMPORTANT RESPONSIBILITIES."

(01) How often does he?		(02) How often should he?		(03) How important is this to you?	
A Great Deal	7	A Great Deal	7	Unimportant	1
Usually	6	Usually	6	Relatively Unimportant	2
Most of the Time	5	Most of the Time	5	Seldom Important	3
Now and Then	4	Now and Then	4	Sometimes Important	4
Hardly Ever	3	Hardly Ever	3	Important	5
Rarely	2	Rarely	2	Very Important	6
Not Ever	1	Not Ever	1	Critical	7

"HE MAKES IT DIFFICULT FOR HIS SUBORDINATES TO USE INITIATIVE."

(04) How often does he?		(05) How often should he?		(06) How important is this to you?	
Not Ever	7	Not Ever	7	Unimportant	1
Rarely	6	Rarely	6	Relatively Unimportant	2
Hardly Ever	5	Hardly Ever	5	Seldom Important	3
Now and Then	4	Now and Then	4	Sometimes Important	4
Most of the Time	3	Most of the Time	3	Important	5
Usually	2	Usually	2	Very Important	6
A Great Deal	1	A Great Deal	1	Critical	7

"HE SEES TO IT THAT PEOPLE UNDER HIM WORK UP TO THEIR CAPABILITIES" (IS27).

(07) How often does he?		(08) How often should he?		(09) How important is this to you?	
Always	7	Always	7	Critical	7
Almost Always	6	Almost Always	6	Very Important	6
Frequently	5	Frequently	5	Important	5
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Seldom Important	3
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Never	1	Never	1	Unimportant	1

"HE CRITICIZES SUBORDINATES IN FRONT OF OTHERS" (CS28).

(10) How often does he?		(11) How often should he?		(12) How important is this to you?	
Not Ever	7	Not Ever	7	Unimportant	1
Rarely	6	Rarely	6	Relatively Unimportant	2
Hardly Ever	5	Hardly Ever	5	Seldom Important	3
Now and Then	4	Now and Then	4	Sometimes Important	4
Most of the Time	3	Most of the Time	3	Important	5
Usually	2	Usually	2	Very Important	6
A Great Deal	1	A Great Deal	1	Critical	7

"HE IS AWARE OF THE STATE OF HIS UNIT'S MORALE AND DOES ALL HE CAN TO MAKE IT HIGH."

(13) How often does he?		(14) How often should he?		(15) How important is this to you?	
Always	7	Always	7	Critical	7
Almost Always	6	Almost Always	6	Very Important	6
Frequently	5	Frequently	5	Important	5
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Seldom Important	3
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Never	1	Never	1	Unimportant	1

"HE IS SELFISH."

(16) How often is he?		(17) How often should he be?		(18) How important is this to you?	
Not Ever	7	Always	1	Unimportant	1
Rarely	6	Almost Always	2	Relatively Unimportant	2
Hardly Ever	5	Frequently	3	Seldom Important	3
Now and Then	4	Sometimes	4	Sometimes Important	4
Most of the Time	3	Infrequently	5	Important	5
Usually	2	Almost Never	6	Very Important	6
A Great Deal	1	Never	7	Critical	7

"HE KEEPS ME INFORMED OF THE TRUE SITUATION, GOOD AND BAD, UNDER ALL CIRCUMSTANCES."

(19) How often does he?		(20) How often should he?		(21) How important is this to you?	
Without Exception	7	Without Exception	7	Critical	7
Quite Often	6	Quite Often	6	Very Important	6
Often	5	Often	5	Important	5
Occasionally	4	Occasionally	4	Sometimes Important	4
Once in Awhile	3	Once in Awhile	3	Seldom Important	3
Seldom	2	Seldom	2	Relatively Unimportant	2
Not at All	1	Not at All	1	Unimportant	1

"HE TREATS PEOPLE IN AN IMPERSONAL MANNER--LIKE COGS IN A MACHINE."

(22) How often does he?		(23) How often should he?		(24) How important is this to you?	
Not at All	7	Not at All	7	Unimportant	1
Seldom	6	Seldom	6	Relatively Unimportant	2
Once in Awhile	5	Once in Awhile	5	Seldom Important	3
Occasionally	4	Occasionally	4	Sometimes Important	4
Often	3	Often	3	Important	5
Quite Often	2	Quite Often	2	Very Important	6
Without Exception	1	Without Exception	1	Critical	7

"HE DISTORTS REPORTS TO MAKE HIS UNIT LOOK BETTER."

(25) How often does he?		(26) How often should he?		(27) How important is this to you?	
Not Ever	7	Never	7	Critical	7
Rarely	6	Almost Never	6	Very Important	6
Hardly Ever	5	Infrequently	5	Important	5
Now and Then	4	Sometimes	4	Sometimes Important	4
Most of the Time	3	Frequently	3	Seldom Important	3
Usually	2	Almost Always	2	Relatively Unimportant	2
A Great Deal	1	Always	1	Unimportant	1

"HE BACKS UP SUBORDINATES IN THEIR ACTIONS" (CS34).

(28) How often does he?		(29) How often should he?		(30) How important is this to you?	
Never	1	Never	1	Unimportant	1
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Infrequently	3	Infrequently	3	Seldom Important	3
Sometimes	4	Sometimes	4	Sometimes Important	4
Frequently	5	Frequently	5	Important	5
Almost Always	6	Almost Always	6	Very Important	6
Always	7	Always	7	Critical	7

"HE COMMUNICATES EFFECTIVELY WITH HIS SUBORDINATES."

(31) How often does he?		(32) How often should he?		(33) How important is this to you?	
A Great Deal	7	A Great Deal	7	Critical	7
Usually	6	Usually	6	Very Important	6
Most of the Time	5	Most of the Time	5	Important	5
Now and Then	4	Now and Then	4	Sometimes Important	4
Hardly Ever	3	Hardly Ever	3	Seldom Important	3
Rarely	2	Rarely	2	Relatively Unimportant	2
Not Ever	1	Not Ever	1	Unimportant	1

"HE EXPLAINS THE REASON FOR HIS ACTIONS TO HIS SUBORDINATES" (CS36).

(34) How often does he do this?		(35) How often should he do this?		(36) How important is this to you?	
Never	1	Never	1	Unimportant	1
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Infrequently	3	Infrequently	3	Seldom Important	3
Sometimes	4	Sometimes	4	Sometimes Important	4
Frequently	5	Frequently	5	Important	5
Almost Always	6	Almost Always	6	Very Important	6
Always	7	Always	7	Critical	7

"HE ESTABLISHES AND MAINTAINS A HIGH LEVEL OF DISCIPLINE."

(37) How often does he?		(38) How often should he?		(39) How important is this to you?	
Without Exception	7	Without Exception	7	Unimportant	1
Quite Often	6	Quite Often	6	Relatively Unimportant	2
Often	5	Often	5	Seldom Important	3
Occasionally	4	Occasionally	4	Sometimes Important	4
Once in Awhile	3	Once in Awhile	3	Important	5
Seldom	2	Seldom	2	Very Important	6
Not at All	1	Not at All	1	Critical	7

"HE DRAWS A DEFINITE LINE BETWEEN HIMSELF AND HIS SUBORDINATES."

(40) How often does he?		(41) How often should he?		(42) How important is this to you?	
Without Exception	7	Without Exception	7	Unimportant	1
Quite Often	6	Quite Often	6	Relatively Unimportant	2
Often	5	Often	5	Seldom Important	3
Occasionally	4	Occasionally	4	Sometimes Important	4
Once in Awhile	3	Once in Awhile	3	Important	5
Seldom	2	Seldom	2	Very Important	6
Not at All	1	Not at All	1	Critical	7

"HE IS OVERLY AMBITIOUS AT THE EXPENSE OF HIS SUBORDINATES AND HIS UNIT."

(43) How often is he?		(44) How often should he be?		(45) How important is this to you?	
Not at All	7	Not at All	7	Unimportant	1
Seldom	6	Seldom	6	Relatively Unimportant	2
Once in Awhile	5	Once in Awhile	5	Seldom Important	3
Occasionally	4	Occasionally	4	Sometimes Important	4
Often	3	Often	3	Important	5
Quite Often	2	Quite Often	2	Very Important	6
Without Exception	1	Without Exception	1	Critical	7

"HE SETS THE EXAMPLE FOR HIS MEN ON AND OFF DUTY."

(46) How often does he?		(47) How often should he?		(48) How important is this to you?	
Always	7	Always	7	Critical	7
Almost Always	6	Almost Always	6	Very Important	6
Frequently	5	Frequently	5	Important	5
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	3	Infrequently	3	Seldom Important	3
Almost Never	2	Almost Never	2	Relatively Unimportant	2
Never	1	Never	1	Unimportant	1

"HE FAILS TO SHOW AN APPRECIATION FOR PRIORITIES OF WORK."

(49) To what extent does he?		(50) To what extent should he?		(51) How important is this to you?	
Always	1	Always	1	Critical	7
Almost Always	2	Almost Always	2	Very Important	6
Frequently	3	Frequently	3	Important	5
Sometimes	4	Sometimes	4	Sometimes Important	4
Infrequently	5	Infrequently	5	Seldom Important	3
Almost Never	6	Almost Never	6	Relatively Unimportant	2
Never	7	Never	7	Unimportant	1

"HE DEMANDS RESULTS ON TIME WITHOUT CONSIDERING THE CAPABILITIES AND WELFARE OF HIS UNIT."

(52) To what extent does he do this?		(53) To what extent should he do this?		(54) How important is this to you?	
Not at All	7	Not at All	7	Critical	7
Seldom	6	Seldom	6	Very Important	6
Once in Awhile	5	Once in Awhile	5	Important	5
Occasionally	4	Occasionally	4	Sometimes Important	4
Often	3	Often	3	Seldom Important	3
Quite Often	2	Quite Often	2	Relatively Unimportant	2
Without Exception	1	Without Exception	1	Unimportant	1

"HE HESITATES TO TAKE ACTION IN THE ABSENCE OF INSTRUCTIONS."

(55) To what extent does he do this?		(56) To what extent should he do this?		(57) How important is this to you?	
A Great Deal	1	Always	1	Unimportant	1
Usually	2	Almost Always	2	Relatively Unimportant	2
Most of the Time	3	Frequently	3	Seldom Important	3
Now and Then	4	Sometimes	4	Sometimes Important	4
Hardly Ever	5	Infrequently	5	Important	5
Rarely	6	Almost Never	6	Very Important	6
Not Ever	7	Never	7	Critical	7

PART II

SECTION III

1. How do you personally feel about the overall performance of your SUPERIOR? Please circle the response number which most nearly reflects your feelings.

3 SOMEWHAT DISAPPOINTED	5 SOMEWHAT PLEASED	2 HIGHLY DISAPPOINTED
4 LUKEWARM-- NO STRONG FEELINGS	6 HIGHLY PLEASED	1 TOTALLY DISAPPOINTED IN ALL RESPECTS
	7 TOTALLY PLEASED IN ALL RESPECTS	

2. If you had been in a combat situation, how do you think you would have felt about the overall performance of this SUPERIOR? Please circle the response number which most nearly reflects your feelings.

3 SOMEWHAT DISAPPOINTED	5 SOMEWHAT PLEASED	2 HIGHLY DISAPPOINTED
4 LUKEWARM-- NO STRONG FEELINGS	6 HIGHLY PLEASED	1 TOTALLY DISAPPOINTED IN ALL RESPECTS
	7 TOTALLY PLEASED IN ALL RESPECTS	

There will continue to be many varied leadership challenges in the Army. Although there have been numerous changes of values and customs within our society, the principles of leadership listed below have been guides for many years.

1. Be technically and tactically proficient.
2. Know yourself and seek self-improvement.
3. Know your men and look out for their welfare.
4. Keep your men informed.
5. Set the example.
6. Insure the task is understood, supervised, and accomplished.
7. Train your men as a team.
8. Make sound and timely decisions.
9. Develop a sense of responsibility among subordinates.
10. Employ your command in accordance with its capabilities.
11. Seek responsibility and take responsibility for your actions.

This part of the study pertains to the relative importance and application of the principles of leadership. We realize that all of the principles are important; however, depending on the situation, some may not be as important as others. Further, this item does not attempt to evaluate the techniques of application. We appreciate the interrelationship between the principles, but ask you to list the numbers of the three principles that ARE THE LEAST IMPORTANT TO YOU in the spaces provided below.

THREE LEAST IMPORTANT:

_____

_____

_____

Please choose three principles that are the MOST IMPORTANT TO YOU and place their numbers in the spaces provided.

THREE MOST IMPORTANT:

_____

_____

_____

PART III

If you could have a major impact on one of the following areas which would you select and why would you?

a. Loyalty

b. Morale

c. Discipline

d. Esprit De Corps

e. Integrity

COMMENTS:

We appreciate your help and cooperation in completing this questionnaire. Please make certain that you have answered every question and turn it in to the monitor. Thank you.

APPENDIX C

SUMMARY DATA TABLE

LEADERSHIP BEHAVIOR: ➧

CRITICIZED A SPECIFIC ACT RATHER THAN AN INDIVIDUAL

	DESCRIPTION OF SUPERIOR					DESCRIPTION OF SELF					DESCRIPTION OF SUBORDINATE					PERFORMANCE SHORTFALL				PERCEPTION SHORTFALL (SELF-DELUSION)			POTENTIAL FOR INFLATED APPRAISAL OF THIS BEHAVIOR (ACTING AS A SUPERIOR)
	Importance	Observed Occurrence	Desired Occurrence	Raw Shortfall (Desired-Observed)	Weighted Shortfall (Raw X Importance)	Importance	Observed Occurrence	Desired Occurrence	Raw Shortfall (Desired-Observed)	Weighted Shortfall (Raw X Importance)	Importance	Observed Occurrence	Desired Occurrence	Raw Shortfall (Desired-Observed)	Weighted Shortfall (Raw X Importance)	Seen By Subordinates	Seen By Self	Seen By Superior	TOTAL	Seen By Subordinates	Seen By Superiors	TOTAL	
Non-Ldrs (E1, E2)	4.9	4.5	5.3	0.8	3.9	5.0	4.5	5.5	1.0		5.0	+S 6.5	6.5	0									
Ldr-Cand (E3)	4.7	4.2	5.2	1.0	4.7						4.5	4.0	4.0	0									1.6
Jr NCOs (E4-E6)	-PS 4.8	-S 4.2	5.2	+PS 1.0	4.3	-PS 5.0	-PS 4.9	5.5	+S 0.6	3.0	+PS 5.2	4.8	5.0	−PS 0.2	1.0	4.7	3.0	2.6	10.3	1.7	0.4	2.1	0
Sr NCOs (E6-E9)	5.0	4.6	-NS 4.7	-NS 0.1	0.5	5.3	5.0	5.3	0.3	1.6	+S 5.2	-S 4.2	-S 4.8	0.6	2.6	4.3	1.6	7.6	13.5	2.7	6.0	8.7	0
Ldr Techs (All WOs)	5.1	4.8	5.4	0.6	3.0	5.1	5.0	5.2	0.2	1.0	4.7	4.9	5.0	0.1	.47								
Jr Co Gr (01)	5.1	4.8	5.4	0.6	3.0	5.3	5.0	+PS 5.7	+NS 0.7	4.2	5.1	4.2	5.6	+S 1.4	7.6	0.5	4.2	3.4	8.1	-3.7	-.8	4.5	-.5
Sr Co Gr (02-03)	5.0	4.7	5.2	0.5	3.0	5.1	5.1	5.4	0.3	1.5	-PS 4.8	4.5	5.2	0.7	3.4	3.0	1.5	2.4	6.9	1.5	0.9	2.4	-.5
Jr Fld Gr (04-05)	+PS 5.1	4.7	+PS 5.4	0.7	3.6	5.2	5.2	5.4	-PS 0.2	1.0	4.8	4.7	5.2	0.5	2.4	3.0	1.0	2.8	6.8	2.0	1.8	3.8	0
Colonels (06)	4.9	5.0	5.2	0.2	1.5	+PS 5.5	+NS 5.7	+PS 5.8	0.1	.55	4.7	4.7	5.3	0.6	2.8	3.6	.5	0.5	4.6	3.1	-.1	4.2	2.0
Generals (07 up)						5.1	5.4	5.7	0.3	1.5	5.1	+PS 5.1	5.2	0.1	0.5	1.5	1.5		3.0	0		0	
All Subjects	5.0	4.6	5.2	0.6	3.0	5.2	5.1	5.5	0.4	2.1	4.9	4.6	5.1	0.5	2.5								
Civilians																							

APPENDIX D

ORGANIZATIONAL FUNCTION AND BRANCH OF ASSIGNMENT SURVEY



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ORGANIZATIONAL FUNCTION AND BRANCH OF ASSIGNMENT SURVEY

Your participation is solicited in a study of Army organizational function and branch of assignment characteristics. The data to be collected will be used in my Ph. D. dissertation to enable further analysis of leadership data collected by the U.S. Army in 1971.

Organization theorists have developed a continuum of organizational characteristics ranging from a closed/stable/mechanistic type at one extreme to an open/adaptive/organic type at the other. The former (mechanistic) are usually described as bureaucratic and tend to operate in relatively closed, certain and determinate environments. These mechanistic organizations are characterized by (1) highly formal organizational structures, (2) relatively repetitive, routine tasks, (3) many written procedures, rules and regulations, (4) clear definition of responsibility and authority (both vertically by hierarchial level and horizontally by organizational function), (5) relatively autocratic decision-making, and (6) emphasis on stable, efficient performance.

The open/adaptive/organic (organic) organizational types are usually described as non-bureaucratic and tend to operate in relatively open, uncertain, indeterminate environments. They are further characterized by (1) highly informal organizational structures, (2) relatively varied and nonroutine tasks, (3) written procedures, rules and regulations, (4) relatively vague definition of responsibility and authority, (5) participative decision-making, and (6) emphasis on effective problem solving and innovation. Most organizations range somewhere between the idealized extremes of this mechanistic-organic continuum.

This survey has two objectives. The first objective is to determine the relative location of the various functional areas of the Army (combat, education and training, administration, logistics, and research) on the mechanistic-organic continuum. The second objective is to determine the relative location of the various branches of the Army (Infantry, Ordnance, Finance, etc.) on the continuum.

You can assist in accomplishing these objectives by filling out the attached questionnaire. It is hoped that the knowledge to be gained by the study will benefit the Army as well as the undersigned. Your cooperation and assistance will be deeply appreciated.

Sincerely,

Martin K. Marsh

Martin K. Marsh
LTC, USA (Ret.)

Inclosure: Questionnaire

ARMY FUNCTION AND BRANCH QUESTIONNAIRE

DEFINITIONS

MECHANISTIC: Bureaucratic; operate in relatively closed, certain, determinant environments; characterized by (1) highly formal organizational structure, (2) relatively repetitive, routine tasks, (3) many written procedures, rules and regulations, (4) clear definition of responsibility and authority (both vertically by hierarchial level and horizontally by organizational function), (5) autocratic decision making and (6) emphasis on stable, efficient performance.

ORGANIC: Non-bureaucratic; operate in relatively open, uncertain, indeterminate environments, characterized by (1) highly informal organzational structures, (2) relatively varied and nonroutine tasks, (3) few written procedures, rules and regulations, (4) relatively vague definition of responsibility and authority, (5) participative decision-making, and (6) emphasis on effective problem solving and innovation.

SAMPLE SCALE

Mechanistic:	_____	_____	_____	_____	_____	_____	_____	_____	:Organic
	1	2	3	4	5	6	7	8	
	Very Mechanistic	Quite Mechanistic	Somewhat Mechanistic	Slightly Mechanistic	Slightly Organic	Somewhat Organic	Quite Organic	Very Organic	

INSTRUCTIONS

1. Based on your experiences in Army organizations and the above definitions for mechanistic and organic organizations, indicate the relative location of each organizational function or branch on the following eight-point scales (defined above). Do this by placing an "X" in the appropriate space of the scale, opposite the name of the relevant function or branch.

2. Your response should provide a summary rating for each organizational function or branch category. That is, if different components of a single function or branch have diverse characteristics, combine them so as to provide one overall assessment of each function or branch.

3. It is recognized that environmental and organizational characteristics will vary depending on whether the Army is operating under combat or non-combat conditions. Because other data to be used in the study was gathered under non-combat conditions, make your assessment in terms of the PEACETIME Army.

4. Because the data to be used in the research was collected in 1971, prior to integration of the Woman's Army Corps (WAC) into the non-combat branches, try to evaluate the WAC as it was prior to integration.

ORGANIZATIONAL FUNCTION SCALES

Education and Training — Mechanistic: __:__:__:__:__:__:__:__:Organic
1 2 3 4 5 6 7 8

Research — Mechanistic: __:__:__:__:__:__:__:__:Organic
1 2 3 4 5 6 7 8

Combat — Mechanistic: __:__:__:__:__:__:__:__:Organic
1 2 3 4 5 6 7 8

Administration — Mechanistic: __:__:__:__:__:__:__:__:Organic
1 2 3 4 5 6 7 8

Logistics — Mechanistic: __:__:__:__:__:__:__:__:Organic
1 2 3 4 5 6 7 8

BRANCH OF THE ARMY SCALES

Armor	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Adjutant General's Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Finance Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Signal Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Quartermaster Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Military Intelligence	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Ordnance Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Chemical Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Transportation Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Field Artillery	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Military Police Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Corps of Engineers	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Infantry	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Medical Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Chaplain's Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic
Judge Advocate General's Corps	Mechanistic: _1 : _2 : _3 : _4 : _5 : _6 : _7 : _8 :Organic

Woman's Army Corps — Mechanistic: __:__:__:__:__:__:__:__:Organic (1 2 3 4 5 6 7 8)

Air Defense Artillery — Mechanistic: __:__:__:__:__:__:__:__:Organic (1 2 3 4 5 6 7 8)

Medical Service Corps — Mechanistic: __:__:__:__:__:__:__:__:Organic (1 2 3 4 5 6 7 8)

BIOGRAPHICAL DATA

The information in this section is desired, but is optional; you are not required to provide this biographical data. The biographical data will be used only to establish the respresentativeness of the sample, and will be helpful in that respect.

1. AGE (circle)
   a. 17-21
   b. 22-28
   c. 29-35
   d. 36-45
   e. Over 45

2. SEX (circle)
   a. MALE
   b. FEMALE

3. GRADE (circle)
   a. 01
   b. 02
   c. 03
   d. 04
   e. 05
   f. 06

4. TOTAL YEARS ACTIVE SERVICE (circle)
   a. Under 2
   b. Over 2 but less than 5
   c. Over 5 but less than 10
   d. Between 10 and 20
   e. Over 20

5. BRANCH (circle)

a. ADA	i. DC	q. MSC
b. AGC	j. FA	r. ORDC
c. AMSC	k. FC	s. QMC
d. ANC	l. INF	t SIGC
e. ARMOR	m. JAGC	u. TC
f. CH	n. MC	v. VC
g. CMLC	o. MI	w. WAC
h. CE	p. MPC	

6. EDUCATION: WHAT IS THE HIGHEST LEVEL OF CIVILIAN EDUCATION YOU HAVE COMPLETED (circle)

a. Eight years or less

b. Completed some high school

c. Graduated from high school

d. Completed some college

e. Graduated from college

f. Master's degree

g. Doctoral degree

THANKS FOR YOUR ASSISTANCE!

APPENDIX E

RELATIONSHIPS BETWEEN THE CONARCH LEADERSHIP QUESTIONNAIRE AND VARIOUS OHIO STATE INSTRUMENTS

Relationship of CONARC Leadership Behavior Items
to Ohio State Studies

Continental Army Command (CONARC) Items[1]	Halpin & Winer 40 Item LBDQ (Post Factorial Study)[2]	Fleishman's SBDQ (48 Items)[3]	Stogdill's LBDQ Form XII (1962) (100 Items)[4]
1. He lets the members know what is expected of them.*	32. He lets crew members know what is expected of them. (Initiating Structure).		4. He lets group members know what is expected of them. (Initiating Structure).
2. He is easy to understand.**	6. He is easy to understand (Consideration).	18. He is easy to understand. (Consideration).	
3. He trains and develops his subordinates.			
4. He expresses appreciation when a subordinate does a good job.**		6. He expresses appreciation when one of us does a good job. (Consideration).	
5. He is willing to make changes in ways of doing things.**	26. He is willing to make changes. (Consideration).	108. He is willing to make changes. (Consideration).	77. He is willing to make changes. (Consideration).
6. He takes appropriate action on his own.			
7. He is thoughtful and considerate of others.			
8. He offers new approaches to problems.*		63. He offers new approaches to problems. (Initiating Structure).	
9. He counsels his subordinates.			
10. He sets high standards of performance.*	17. He maintains definite standards of performance. (Initiating Structure).		84. He maintains definite standards of performance. (Initiating Structure).
11. He is technically competent to perform his duties.			

Relationship of CONARC Leadership Behavior Items
to Ohio State Studies

Continental Army Command (CONARC) Items[1]	Halpin & Winer 40 Item LBDQ (Post Factorial Study)[2]	Fleishman's SBDQ (48 Items)[3]	Stogdill's LBDQ Form XII (1962) (100 Items)[4]
12. He approaches each task in a positive manner.			
13. He constructively criticizes poor performance.*	9. He criticizes poor work. (Initiating Structure).	14. He criticizes poor work. (Initiating Structure).	
14. He assigns immediate subordinates to specific tasks.*	14. He assigns crew members to particular tasks. (Initiating Structure).	31. He assigns people under him to particular tasks. (Initiating Structure).	54. He assigns group members to particular tasks. (Initiating Structure).
15. He is willing to support his subordinates.			
16. He knows his men and their capabilities.			
17. He is approachable.**	28. He is friendly and approachable. (Consideration).	112. He is friendly and can be easily approached. Consideration).	7. He is friendly and approachable. (Consideration)
18. He gives detailed instructions on how the job should be done.*		103. He decides in detail what shall be done and how it shall be be done. (Initiating Structure).	44. He decides what shall be done and how it shall be done. (Initiating Structure).
19. He stands up for his subordinates even though it makes him unpopular with his superior.**		28. He stands up for his foremen even though it makes him unpopular. (Consideration).	
20. He lets subordinates share in decision making.			
21. He criticizes a specific act rather than an individual.**		107. He criticizes a specific act rather than a particular individual. (Consideration).	

Relationship of CONARC Leadership Behavior Items
to Ohio State Studies

Continental Army Command (CONARC) Items[1]	Halpin & Winer 40 Item LBDQ (Post Factorial Study)[2]	Fleishman's SBDQ (48 Items)[3]	Stogdill's LBDQ Form XII (1962) (100 Items)[4]
22. He sees that subordinates have the materials they need to work with.			
23. He resists changes in ways of doing things.**	Resists changes in ways of doing things. (Sensitivity).	72. He resists changes in ways of doing things. (Consideration).	
24. He rewards individuals for a job well done.**		36. He sees that a foreman is rewarded for a job well done. (Consideration).	
25. He seeks additional and more important responsibilities.			
26. He makes it difficult for his subordinates to use initiative.			
27. He sees to it that people under him work up to their capabilities.*	35. He sees to it that crew members are working up to capacity. (Initiating Structure).	46. He sees to it that people under him are working up to their limits. (Initiating Structure).	
28. He criticizes subordinates in front of others.**		27. He criticizes his foreman in front of others. (Consideration).	
29. He is aware of the state of his unit's morale and does all he can to make it high.			
30. He is selfish.			
31. He keeps me informed of the true situation, good and bad, under all circumstances.			

Relationship of CONARC Leadership Behavior Items
to Ohio State Studies

Continental Army Command (CONARC) Items[1]		Halpin & Winer 40 Item LBDQ (Post Factorial Study)[2]		Fleishman's SBDQ (40 Items)[3]		Stogdill's LBDQ Form XII (1962) (100 Items)[4]	
32. He treats people in an impersonal manner--like cogs in a machine.		Treats crew members like cogs in a machine. (Production emphasis).					
33. He distortsreports to make his unit look better.							
34. He backs up subordinates in their actions. **	21.	He backs up the members in their actions. (Consideration).	100.	He backs up his foremen in their actions. (Consideration).			
35. He communicates effectively with his subordinates.							
36. He explains the reason for actions to his subordinates. **	18.	He refuses to explain his actions. (Consideration).	87.	He refuses to explain his actions. (Consideration).	87.	He refuses to explain his actions. (Consideration).	
37. He establishes and maintains a high level of discipline.							
38. He draws a definite line between himself and his subordinates.							
39. He is overly ambitious at the expense of his subordinates and his unit.							
40. He sets the example for his men on and off duty.							
41. He fails to show an appreciation for priorities of work.							

Relationship of CONARC Leadership Behavior Items
to Ohio State Studies

Continental Army Command (CONARC) Items[1]	Halpin & Winer 40 Item LBDQ (Post Factorial Study)[2]	Fleishman's SBDQ (48 Items)[3]	Stogdill's LBDQ Form XII (1962) (100 Items)[4]
42. He demands results on time without considering the capabilities and welfare of his unit.			
43. He hesitates to take action in the absence of instructions.			6. He is hesitant about taking initiative in the group. (Role Assumption).

NOTES:

1. Leadership for Professionals, Report of the CONARC Leadership Board (Fort Bragg, N. C. : Continental Army Command Leadership Board, July, 1971), Appendix D. This instrument was adapted from Leadership for the 1970's: U.S. Army War College (USAWC) Study of Leadership for the Professional Soldier (Carlisle Barracks, Pa. : U.S. Army War College, 1971), pp. B4-B10. The USAWC items were derived from the Ohio State University research on leadership behavior. The study states that "almost all of the specific things a leader does when he leads will fall under the heading of either Consideration ... or Initiating Structure" (p. 3), and infers that the 43 items can be categorized under one of the other of these two dimensions.

2. Andrew W. Halpin and B. James Winer, "A Factorial Study of the Leader Behavior Descriptions," in Ralph M. Stogdill and Alvin E. Coons (Eds.), Leader Behavior: Its Description and Measurement (Columbus: Ohio State University, Bureau of Business Research, 1957), pp. 39-51. Items were derived from factor analysis of 130 of the original 150 LBDQ items. Only Consideration (15 items) and Initiating Structure (15 items) dimensions were scored. Dimensions represented in the AWC Study:

   Initiating Structure - 6 items.

   Consideration - 5 items.

   Item 34 of the CONARC study above, "He backs up the members in their actions", appears in Halpin's Manual for the Leader Behavior Description Questionnaire (1957), and differs from item 21 in the Halpin and Winer version.

3. Edwin A. Fleishman, "A Leader Behavior Description for Industry," in Ralph M. Stogdill and Alvin E. Coons (Eds.), Leader Behavior: Its Description and Measurement (Columbus: Ohio State University, Bureau of Business Research, 1957), pp. 103-119. Research involved factor analysis of 136 items derived from earlier scales. Item numbers shown above are the pre-factorial study item numbers from the 136 item questionnaire. (The item numbers for the new 48-item revised Supervisory Behavior Description Questionnaire (SBDQ) were not reported in the research, but the SBDQ consisted entirely of the 28 Consideration items and 20 Initiating Structure items shown on pages 108-109. Dimensions represented in the AWC Study:

   Initiating Structure - 6 items.

   Consideration - 11 items.

4. Ralph M. Stogdill, Manual for the Leader Behavior Description Questionnaire-Form XII (Columbus: The Ohio State University, Bureau of Business Research, 1963), and Leader Behavior Description Questionnaire-Form XII (Columbus: The Ohio State University, Bureau of Business Research, 1962). Items were developed for new "hypothetical" subscales, along with Consideration and Initiating Structure based on "theoretical considerations" and a survey of the literature. "Questionnaires incorporating the new items were administered to successive groups. After item analysis, the questions were revised, administered again, reanalyzed, and revised." Form XII represents the fourth revision of the questionnaire and incorporates 12 subscales of which only 3 are represented in the AWC study:

   Initiating Structure - 4 items.

   Consideration - 3 items.

   Role Assumption - 1 item.

*** One of the seven items selected to represent the Consideration dimension in this research.**

**** One of the seven items selected to represent the Initiating Structure dimension in this research.**

APPENDIX F

DEMOGRAPHIC CHARACTERISTICS OF THE RESEARCH SAMPLE (U. S. ARMY DATA BANK)

DEMOGRAPHIC CHARACTERISTICS
RESEARCH SAMPLE (U. S. ARMY DATA BANK)

Characteristic	Number of Respondents (N=2334)	Proportion of Sample
1. Age		
17-21	2	.001
22-28	814	.349
29-35	562	.241
36-45	736	.315
Over 45	219	.094
Missing Data	1	.000
2. Grade		
Second Lieutenant	64	.017
First Lieutenant	217	.093
Captain	751	.322
Major	558	.239
Lieutenant Colonel	578	.248
Colonel	166	.071
3. Sex		
Male	2262	.969
Female	63	.027
Missing data	9	.004
4. Years Active Service		
Under 2	200	.086
Over 2, under 5	473	.203
Over 5, less than 10	400	.171
Between 10 and 20	902	.386
Over 20	354	.152
Missing data	5	.002
5. Education		
Eight Years or less	0	.000
Completed some high school	5	.002
Graduated from high school	39	.017
Completed some college	468	.201
Graduated from college	1302	.558
Master's degree or higher	515	.221
Missing data	5	.002
6. Race		
American Indian	9	.004
Caucasian	2175	.932
Negro	122	.052
Oriental	14	.006
Other	8	.003
Missing data	6	.003

(Continued)

Characteristic	Number of Respondents (N=2334)	Proportion of Sample
7. Branch		
Air Defense Artillery..	141	.060
Adjutant General Corps.	67	.029
Armor.....	187	.080
Chaplain.....	35	.015
Chemical Corps.....	31	.013
Corps of Engineers.....	132	.057
Field Artillery.....	290	.124
Finance Corps.....	30	.013
Infantry.....	496	.213
Judge Advocate General.	21	.009
Medical Corps.....	68	.029
Military Intelligence..	115	.049
Military Police.....	76	.033
Medical Service.....	108	.046
Ordnance Corps.....	120	.051
Quartermaster.....	93	.040
Signal Corps.....	147	.063
Transportation Corps...	104	.045
Woman's Army Corps.....	27	.012
Missing Data.....	46	.020

Characteristic	Number of Respondents (N=2334)	Proportion of Sample
8. Mission		
Divisional Forces.....	949	.407
School and Training....	459	.197
Field Artillery.....	29	.012
Support and medical....	230	.099
Headquarters post/units	277	.119
Research & development.	201	.086
Specialized units.....	34	.014
Intelligence.....	76	.032
Air Defense Artillery..	68	.029
WAC.....	11	.005
9. Geographic Location		
Continental U. S. A. ..	1699	.728
Germany.....	354	.152
Pacific.....	179	.076
Alaska.....	63	.027
Other.....	39	.017

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