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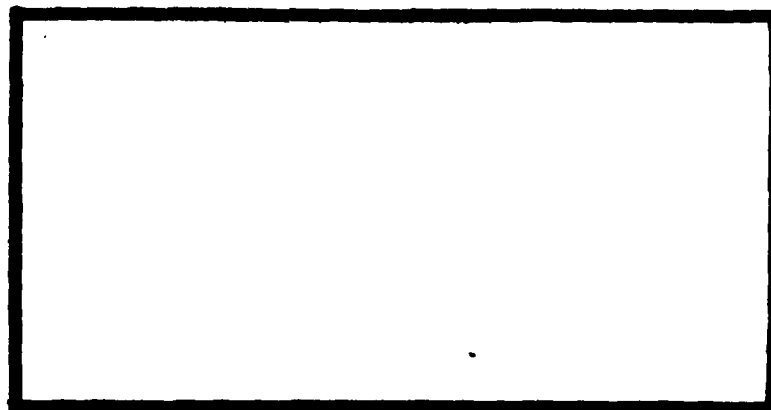
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SUPERVISORY FACTORS RELATED TO THREE
CRITERIA OF ORGANIZATIONAL
EFFECTIVENESS

Howard T. Davis, Jr., 1st Lt, USAF
Adrian Dotson, GS-13

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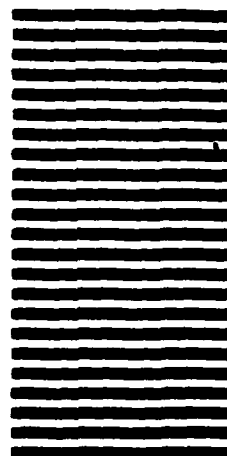
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The purpose of this study was to identify supervisory factors and to examine the relationships between these factors and organizational effectiveness. Data was collected at Williams Air Force Base, Arizona by the Leadership and Management Development Center (LMDC) using survey instruments. The survey instruments were the Organizational Assessment Package (OAP) that LMDC uses in their management consultation services and a new Comprehensive Supervisory Inventory. Factor analysis was used to extract the following supervisory factors: Factor I - Supervisory Assistance and Management Ability, Factor II - Consideration, Factor III - Task Oriented, and Factor IV - Over-Control. The first factor was from the OAP's Supervisory Inventory and the others were from the Comprehensive Supervisory Inventory. The relationships between the supervisory factors and the organizational effectiveness criteria of perceived productivity, organizational climate, and job satisfaction were examined via regression analysis. Factor I was statistically significant in explaining the variance in all three criteria and in fact accounted for most of the variance explained by the four supervisory factors. Factor II and Factor IV were each statistically significant in explaining the variance in two of the criteria. Factor III was not statistically significant in explaining the variance in either of the criteria.

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SUPERVISORY FACTORS RELATED TO THREE
CRITERIA OF ORGANIZATIONAL
EFFECTIVENESS

A Thesis

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology

Air University

In Partial Fulfillment of the Requirements for the
Degree of Master of Science in Logistics Management

By

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First Lieutenant, USAF

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June 1981

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This thesis, written by

First Lieutenant Howard T. Davis

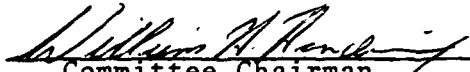
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Mr. Adrian Dotson

has been accepted by the undersigned on behalf of the faculty
of the school of Systems and Logistics in partial fulfillment
of the requirements for the degree of

MASTER OF SCIENCE IN LOGISTICS MANAGEMENT

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Committee Chairman

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We also wish to thank the personnel at the Leadership Management and Development Center, Maxwell AFB, Alabama for providing the data upon which this report is based.

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CHAPTER I

INTRODUCTION

Problem Statement

Organizational effectiveness continues to be an important concern to the Air Force. In 1975 the Air Force established the Leadership and Management Development Center (LMDC) at Maxwell AFB, Alabama, to assist in the improvement of organizational effectiveness. The primary charter of the LMDC was to develop a dynamic and comprehensive Organizational Development (OD) program, focused on improving organizational effectiveness throughout Air Force units (Wilkerson, 1980). LMDC uses a survey instrument entitled the Organizational Assessment Package (OAP) to assess organizational effectiveness. The Organizational Assessment Package had the following sections: a) Supervisory Inventory, b) Job Inventory, c) Job Satisfaction Questionnaire, d) Organizational Climate Inventory, and e) Perceived Productivity Inventory.

There has been previous research (Biernacki and Lumpkin, 1980, Part II) which involved the Construction of a Comprehensive Supervisory Inventory containing additional supervisory factors that affect organizational effectiveness. The current research was to determine how many orthogonal factors with eigenvalues of at least 1.0 are contained in

the Comprehensive Supervisory Inventory. Additionally, the relationships between supervisory factors and organizational effectiveness needed further investigation.

There was also the need to answer the question of whether the Comprehensive Supervisory Inventory would significantly increase the amount of variance explained by the OAP's Supervisory Inventory in the criteria of perceived productivity, organizational climate, and job satisfaction.

Overview

As a researcher or manager, it is safe to make the statement: "An Organization needs to be and should be effective." Such a statement would draw little criticism from organizational theorists or from today's managers. However, it is when the researcher or manager wishes to go beyond this relatively straightforward statement and attempts to describe what constitutes effectiveness and the "best" methods to measure effectiveness within an organization, that difficulty arises and controversy develops. Another reasonable and simple assumption is that organizations have been concerned with this phenomenon of effectiveness since organized society has existed. No doubt, the "managers" for the Egyptian Pharaohs were concerned with being effective when constructing the Pyramids. If one measures effectiveness purely in engineering terms and longevity, then the existence of the pyramids today attest to the degree of managerial effectiveness employed by the ancient managers.

The methods employed in building the pyramids presumably would not be considered effective by Chester Barnard and his colleagues of the Behaviorist School, who viewed organizations as cooperative systems that stressed upward communication and authority from below rather than from above. Barnard stressed the value of decent leadership and the role of psychological manipulation of employees through the counseling system (Perrow, 1973). It is doubtful they would have found much data or opportunity to examine the advantages of participative over authoritarian style of supervision during the construction of the pyramids. On the other hand, Frederick Taylor and associates would have been fascinated to have been able to apply their techniques of Scientific Management.

The point being that the definition and the evaluation of effectiveness is a controversial matter and has always been so. Although students of management will generally agree, with little reservation, that there have been management problems associated with effectiveness since the beginning of organized civilization, most will also agree that formal and systematic study of management, and thus effectiveness within organizations, is a product of this century, especially during the last three decades.

It is against this concept of effectiveness, however ill-defined, that an organization's success is evaluated. A primary task of all Air Force managers is to develop the strategies and management styles that promote organizational effectiveness.

Despite the many divergent, and often conflicting definitions, theories, and concepts of organizational effectiveness, it is a safe assumption, and one supported by the literature, that supervision and supervisory factors play an important role in the effectiveness of an organization. Identifying those orthogonal factors having significant (greater than or equal to 1) eigenvalues and eliminating those that do not would improve the analytical value of the supervisory survey instrument, while adding to the understanding of the relationships between the factors identified and their impact on effectiveness.

CHAPTER II

LITERATURE REVIEW

Background

The earliest research and writings concerning general management concepts and techniques come from such experienced early practitioners of management as Fayol, Mooney, Brown, Barnard, and Urwick (Koontz, 1961). Many of the ideas on organization and management are legacies to today's theorist from different schools of thought, running from the orderly analysis of management at the shop-room level by Taylor to the reflective distillation of experience from the universal point of view by Fayol. The emergence of managerial theory into six schools of thought within the last half century is an indication of the unsophisticated adolescence of management thinking and the resulting differences and apparent confusion. The absence of academic writings and research in the early years of modern management theory is now more than atoned for by the deluge of reports and analyses, principles, and theories, and the proliferation of management guides and handbooks (Koontz, 1961).

In view of the numerous ways in which students and analysis attempt to conceptualize management theory, it comes as no surprise that there is equal disagreement and controversy

with regard to the concept of organizational effectiveness. A principle reason for the lack of agreement comes from the parochial view that many students of management harbor concerning effectiveness, who attempt to define effectiveness in terms of a single criterion (e.g., productivity or efficiency) (Steers, 1976). Another explanation for the controversy over effectiveness arises from the ambiguity of the concept itself. Analysts often assume that it is relatively easy to identify the various criteria for evaluating effectiveness (Steers, 1976). In fact such a concept is intangible and depends on who is doing the analysis and with which school of management theory the analyst identifies. A number of analytical schools and models have attempted to identify relevant facets of effectiveness that could be useful as evaluation criteria.

Effectiveness Models

Goal Oriented Approach

One of the earliest and, therefore, the traditional method for evaluating organizational effectiveness is measured by the extent to which an organization meets its stated objectives as defined by the organization (Schoderbek, Schoderbek, and Kefalas, 1980). These goals of an organization are a "desired state of affairs which the organization attempts to achieve at various micro and macro levels" (Etzioni, 1964, p. 6). Goals approach theorists distinguish between official goals as those formally stated by the organization. Official

goals are often characterized by their vagueness, ambiguity, and broad scope. Operative goals designate the ends sought through the operating policies and procedures of the organization. They attempt to define what the organization is actually trying to accomplish; they may be compatible with the organization's formal operative goals or they may not. Operational goals are merely operative goals for which evaluation criteria already exist, that is they have been operationally defined (Perrow, 1973).

Of the three types of goals, operative goals are the most pertinent to an organization's effectiveness. Although the formal official goals are the easiest to formalize and spell out, it is the operative goals (i.e., the goals the organization actually follow) which determine its success or failure (Schoderbek et al., 1980). The greatest disadvantage, and thus the major criticism of goal theory, is the tendency for goal conflict among diverse goals and the often resulting maximization of one goal or goal set and the resultant suboptimization of the organization in terms of its overall effectiveness (Perrow, 1961).

The Systems Approach

A relatively new approach to organization effectiveness is the systems approach in which effectiveness is defined in terms of how well the system's component parts are integrated and how well the system as a whole copes with its environment. "Thus effectiveness is the degree of internal

consistency and of organizational congruence with its environment" (Schoderbek et al., 1980, p. 21). Yuchtman and Seashore (1967) are proponents of the systems approach. Their model is an open system in which a continuous exchange of energy/information occurs between the system and its environment. Yuchtman and Seashore (1967) define organizational effectiveness as "the ability of the organization, in either absolute or relative terms, to exploit its environment in the acquisition of scarce and valued resources" (p. 898). Therefore, according to Schoderbek et al. (1980 p. 243), an organization is most effective when it can maximize its bargaining position while at the same time optimizing its procurement of resources. Mott (1972) describes organizational effectiveness as "the organization's ability to mobilize its centers of power for action-production and adaptation" (p. 17).

Campbell (1977) complains that the systems resources approach assumes that the demands placed on any organization are so dynamic and complex that it is impossible to define its real goals. The organization's first goal is survival and nondepletion of resources. When assessing an organization's effectiveness, one should begin by asking if the organization is internally consistent with itself and whether its resources are being used wisely. From the practical viewpoint, one should not be concerned with what goals the organization is pursuing, but rather should investigate what conflicts exist within the organization. Thus, the tasks of the organization are of lesser concern, and emphasis should

be placed on the organization's survival probabilities and the system's overall strength. It appears that the difference between the systems approach and the goal-oriented approach tend to disappear if the next logical steps are taken. Campbell (1977) states:

If the goal-oriented analyst attempts to diagnose why an organization scores the way it does on the criteria, he soon will be led back to system-type variables. . . . If the natural systems analyst wonders how various system characteristics affect task performance, he very soon will be trying to decide which tasks are the important ones on which to assess performance. Unfortunately, in real life those second steps are not taken. The goal-oriented analyst tends not to look into the black box, and the natural systems oriented analyst does not like to worry about actual task performance unless he is pressed (p. 32).

Schoderbek et al. (1980) proposed that "The systems resource approach is an inclusive one - inclusive of goal definition, goal attainment, and goal measurement, i.e., the goal approach and the systems approach are not all that different in reality" (p. 143).

Contingency Model and Theory

A relatively new theory, and one that is receiving a great deal of attention throughout the scientific management field, is the Contingency Model. The Contingency Model has its foundation in the systems approach. A necessary prerequisite to adopting this model for this research was the acceptance of the proposition that all that occurs within and outside the organization affects everything else both inside and outside of the organization. The basic premise of the

Contingency Model is that internal and external situations, events, factors, contingencies, etc. determine an organization's structure and multivariate nature. Before accepting the ultimate utility of the Contingency Model, a description of the nature and status of Contingency Theory is presented, along with a synopsis of recent writings and criticisms of the theory by several management scientists.

Contingency Theory has its very foundation in environmental theory. Schoderbek et al. (1980) say:

The need to incorporate environmental variables into the study of organizations is commonly accepted. At the foundation for all organizational research are the implicit assumptions that: (a) various dimensions of organizational environment exist, (b) that the various factors or elements of the environment can be identified, and (c) that specific kinds of environments and environment sets can be and are associated with specific types of organizations (p. 170).

Various authors, Burns and Stalker (1961), Lawrence and Lorsch (1967), Emery and Trist (1965), Jurkovich (1974), Duncan (1972), Stogdill (1966), and many others have explored the nature of the organizational environment. A major dimension of environment explored by most is the concept of complexity. Various researchers have assigned varied names and dimensions to the concept of complexity. For example, Duncan (1972) "embraced two determinants of complexity: (1) the number of elements and (2) the degree of dissimilarity (lack of homogeneity) among the elements" (p. 325). Osborn and Hunt (1974) defined complexity in terms of three interrelated variables: "(1) the amount of risk involved in organization-environment relations (2) environmental dependency . . . and

(3) the degree of favorableness of inter-organizational relationships" (p. 231).

Regardless of how complexity is defined and described, it is accepted as being an important and necessary dimension of organizational environment. In addition to complexity, Schoderbek et al. (1980) include uncertainty and change as being an important characteristic of the organizational environment.

Whether you include uncertainty and change in assessing organizational environment or not, the value assigned and method of description is dependent upon the particular author's conceptual framework. Duncan (1972) integrates the change and complexity dimensions of organizational environments with that of uncertainty. Burns and Stakler (1961), however, focused on framing the environment as either being organic (flexible, changing) or mechanistic. While a bit later Lawrence and Lorsch (1967) classified the environment according to the two structured characteristics of differentiation and integration.

Regardless of how described and conceptualized, the conclusions that can be drawn are the same: (a) that the organizational environment is complex and ever-changing and (b) that little is known about it other than it impacts and reacts with and within the organization and is responsible for the multivariate nature of organizations. Thus, any examination of organizational effectiveness must at least work within the Contingency Model framework.

The contingency approach assumes that the key input factors to influencing organizational effectiveness are environmental forces, and that these forces interact with a given dominant coalition structure to produce the outputs. The outputs become part of the environment and the cycle continues. The contingency approach further assumes an open and dynamic situation whereby the environmental and organizational forces interact. The interaction is such that the exchange of environmental forces such as upper-level management policy and uncertainty may be associated with particular types of organizational structure, administrative practices, organizational objectives and policies (Paine & Naumes, 1978).

The contingency approach has been suggested by several studies. Paine and Anderson (1977) evaluated 62 cases involving a variety of organizations and environments. They concluded that successful organizations tend to follow a strategic mode which was perceived by the manager as being appropriate for the conditions. Those firms that were relatively the most effective were innovative and proactive in searching for and evaluating environmental information in contrast to the less successful firms.

Lawrence and Lorsch (1969) contend that organizations within a stable environment may find a centralized bureaucratic organizational structure adequate for achieving proper coordination and specialization of activities, while a more uncertain or turbulent environment would preclude effective use of the same form.

Hage and Aiken (1969) evaluated the interrelationships between technology and structure and concluded that organizations with routine work will be more firmly structured.

Managerial perceptions of the environment are apparently quite important in Contingency Theory. Kandwalla (1976), in a study of 79 firms, correlated the perceived importance of each of several functional activities with perceived magnitude of different forms of environment competition. He found that corporate strategies of firms where a dynamic environment is perceived to exist by the managers will probably be significantly different from and more comprehensive than those firms where a more stable and predictable environment is perceived to exist.

Wood (1979) reviewed the works of Warmington, Lupton and Gribbin (1977), Legge (1978), Bowey (1976), and Child (1977), and their approaches to Contingency Theory. Wood (1979) also described the nature and status of Contingency Theory, while simultaneously describing several of the Theory's weaknesses and criticisms as presented by Warmington et al., Legge, Bowey, and Child.

Wood (1979) began by stating:

At first glance Contingency Theory appears to be embodied in the very simple idea that there is no best way of organizing. Its status is one of a negatively based rule of thumb of encouraging managers not to adopt any given principle or policy of management and of encouraging management scientists not to look for universalistic solutions and not to peddle panaceas for securing effective organizations (p. 334).

To present their case, Contingency Theorists draw heavily from the classic studies of Woodward (1965) and Burns and Stalker (1966)--and with good reason. For example, Burns (Burns & Stalker, 1966) concluded from his study:

The form of management is dependent on the situation the concern is trying to meet, and that an ideal type of management system which can serve as a model to which administrative practice should or could in time approximate (p. vii).

But Wood (1979) pointed out that contingency thinking is more than a mere reaction to the ready solutions and universal principles of the classical management school. Contained implicitly in the criticism of the "one best way approach" is the recognition that appropriate organization is contingent on specific factors, such as environment, technology, and other variables.

Legge (1978) distinguished between the "positive" and "normative" dimensions to Contingency Theory. The positive stresses that it is the contingencies within the organizational environment that influence the organization's internal structure and processes. Thus, the organization is viewed as a system with an overriding need to survive and adjust to its environment (Wood, 1979). The normative dimension illustrates the need for managers to design their organizational structure to fit its environment, thus requiring further that managers define the environment in which their organization will operate, "to define the situation they must confront and to adopt their management style to the appropriate structure" (Wood, 1979, p. 335). It is in these

requirements that Contingency Theory gains creditability, refutes complacency, and robs managers of the idea that their particular organization is unique, and because none of the universal principles apply, nothing can or should be done (Wood, 1979).

The emphasis in organizational and management thinking thus became contextual variables. This emphasis has increasingly begun to permeate beyond the boundaries of formal management structure resulting in contingency approaches to virtually all areas of management theory and practice (Wood, 1979, p. 336).

In fact, the new contingency approach which evolved out of the need to combat the simplistic, universalistic panaceas has now evolved itself into the panacea of the situational approach to management (Wood, 1979).

Wood (1979) summarizes Contingency Theory by stating that it is

based on a particular view of previous approaches to organization theory, concerned to draw out and develop the practical implication of the studies by Burns and Stalker, Woodward, etc. and involves the development of a social scientific approach to management (p. 338).

Recently several contemporary writers have discussed Contingency Theory in terms of general criticisms of structured functionalism; of particular interest has been questions concerning organizational goals, i.e., goal definition, multiple goals, etc. (Wood, 1979). In consideration of these questions, the works of Warmington et al. (1977), Legge (1978), and Bowey (1976) are of special interest.

Warmington et al. (1977) recognize the criticisms and weakness of Contingency Theory and argue for its usage

precisely because of its relative absence of bias between different groups and levels in the organization. Legge (1978) implies that the problem of objectives can be dealt with in Contingency Theory by including the objectives along with the other environmental factors as one of the contingencies to be reckoned with. Bowey (1976) contends that contingency must break away from its tendency toward functionalism because of its unproblematic treatment of organizational goals and build on the "action approach" which should enhance the theory's potential value.

Child (1977) is less enamored with the theory as a whole, conceding that the theory may have some general usefulness for managers, but that the limitations of the positive theory point to the many difficulties involved on the part of managers in attempting to structure an organization that is able to satisfy all the possible contingencies that exist or may arise. He also points out that the achievement of internal consistency, as opposed to environmental fit, is more desirable and, thus, a more appropriate principle. Therefore, the main weakness of Contingency Theory, according to Child (1977), is

the lack of conclusive evidence to demonstrate that matching organizational designs to prevailing contingencies contribute importantly to performance. . . . Therefore, it remains very much an open question as to just how significant an influence on organizational performance the organizational design contingency match really is (p. 165).

Wood (1979) concluded by emphasizing that a major weakness of the contingency writings is their rather limited reading of the work in which they purport to be rooted. Almost total emphasis is given to

accounts of Burns and Stalker's work and to its dichotomous classification of formal organizations. . . . of far greater interest in the work of Burns and Stalker is the idea that the organization is more than a formal system and is constituted by a "plurality of systems," including a political system, and that there may exist "pathological" organization (p. 353).

Despite the apparent confusion and controversy concerning Contingency Theory, there is wide support in the current literature for the view that multiple criteria should be used in evaluating organizational effectiveness (Albanese, 1978; Campbell, 1977; Pennings, 1977; Weick, 1977). For example, Steers (1976, Fig. 2) gave organizational characteristics, environmental characteristics, employee characteristics, and managerial policies and practices as major organizational effectiveness influences.

The utility of the Contingency Model is summarized by Kast and Rosenzweig (1978):

. . . it can help managers select the appropriate organizational design within certain environmental and technological contents; it can provide guidelines for realistic planning and control process in differing situations; it can help in determining appropriate leadership styles; and it can be instrumental in determining the most relevant means for organizational change and improvement (p. 118).

The Three-Component Contingency Model

Steers (1976) reviewed different approaches to assessing organizational effectiveness, and his conclusions support our conclusions; namely, that there is a general absence of agreement among management scientists as the best way to approach the assessment of organizational effectiveness.

Because of this generally accepted view that organizational effectiveness should be evaluated in terms of multiple criteria and within a frame of reference. This research was based on Hendrix's (1979) Three-Component Organizational Effectiveness Model (Figure 2-1).

The Three-Component Model was developed by Hendrix (1976) as a result of extensive research at the Air Force Human Resources Laboratory (AFHRL) at Brooks AFB, Texas. The model reflects the contingency approach, emphasizing the multivariate nature of organizations and attempts to recognize the interactions that occur within organizations. Hendrix's model proposes that the measurement of effectiveness depends on the criterion used and provides a means for evaluating various factors that influence organizational effectiveness and their relationships to each other. This model defines organizational effectiveness (E) as a function of the criterion selected (C), the managerial style employed (M), and the situational environment (S); that is, $E = f(C, M, S)$.

The Organizational Assessment Package (OAP) was developed by Hendrix (1979) to measure these three basic components. The OAP contains the following: Job Inventory and Background Information Section, which measures the situational environment; Job Satisfaction Questionnaire, Organizational Climate Inventory and Perceived Productivity Inventory, which serve as Criterion Measures; and the Supervisor Inventory, which measures the management area. The OAP was validated in 1978, and the Leadership Management Development Center has

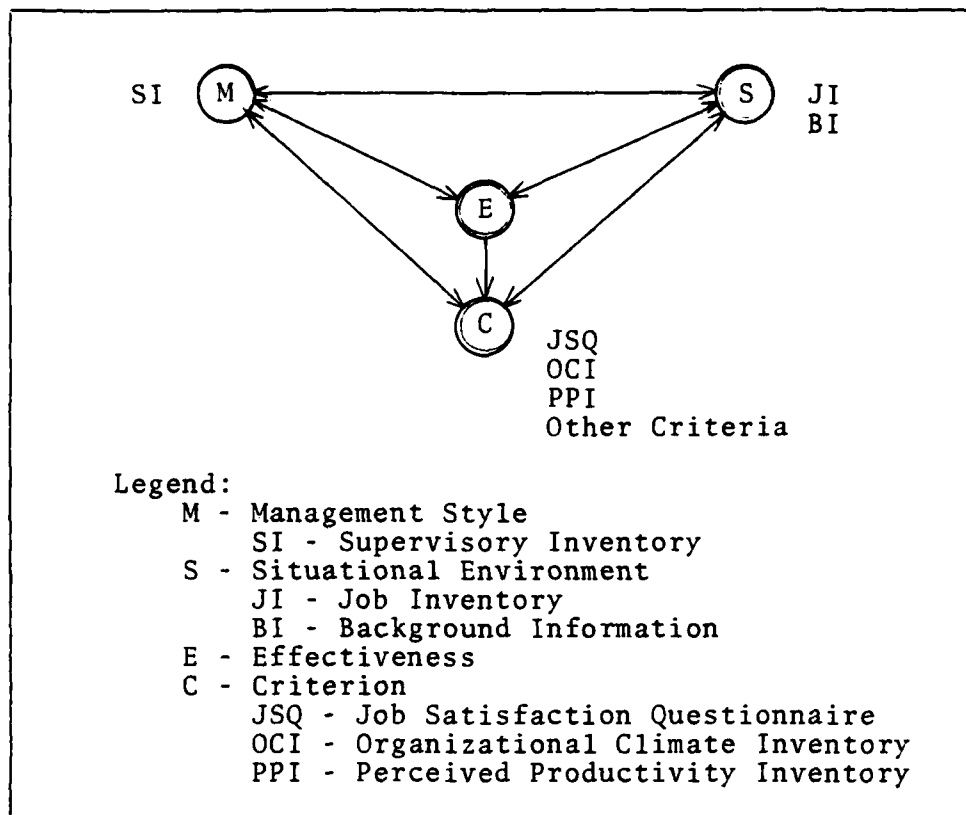


Figure 2-1

Hendrix's Three-Component Organizational
Effectiveness Model
(Hendrix, 1979, Fig. 1)

been using the OAP for two years to identify problem areas and to recommend needed training or appropriate management actions. Follow-up tests have consistently shown improvements (Wilkinson, 1980). There has been an effort to make the supervisory inventory more comprehensive.

Development of Comprehensive Supervisory Inventory

Biernacki and Lumpkin

Biernacki and Lumpkin (1980) accomplished the first task needed to develop a Comprehensive Supervisory Inventory. They constructed a survey instrument starting with the validated Supervisory Inventory and added items which had been deleted from Hendrix's original version prior to validation because of survey length constraints, as well as items which were identified in a literature review. Biernacki and Lumpkin tested their 150-question versions using 146 students. A factor analysis of this test results identified 13 supervisory factors contained in their version of the Comprehensive Supervisory Inventory. Their factor analysis also identified 79 of the 150 questions as having significant loadings on the supervisory factors.

Leadership Management and Development Center

These 79 questions were presented to the Leadership Management and Development Center as a supervisory inventory to be used in gathering data for this research effort. The Leadership and Management Development Center deleted a number of questions from the supervisory inventory which they felt were of questionable value or that were duplicated in the OAP Supervisory Inventory. The final Comprehensive Supervisory Inventory used by the LMDC contained 49 questions. The data for this research is based on data collected utilizing the

46 questions in the Comprehensive Supervisory Inventory (Appendix A), plus the 19 questions from the Organizational Assessment Package Supervisory Inventory (Appendix B).

Research Objectives

The first objective of this research was to determine how many orthogonal supervisory factors with eigenvalues greater than or equal to 1.0 were contained in the OAP's Supervisory Inventory and the Comprehensive Supervisory Inventory. A second objective was to test the following hypotheses:

1. The supervisory factors are predictive of 25 percent or more of the variance in the criterion of job satisfaction (R^2 greater than or equal to .25).
2. The supervisory factors are predictive of 25 percent or more of the variance in the criterion of organizational climate (R^2 greater than or equal to .25).
3. The supervisory factors are predictive of 25 percent or more of the variance of the criterion of perceived productivity (R^2 greater than or equal to .25).

Another objective of this research was to determine how much the factors identified from the Comprehensive Supervisory Inventory increased the amount of explained variance explained by the OAP's Supervisory Inventory. The final

objective of this research was to examine the relationship between the supervisory factors and the three criteria.

CHAPTER III

METHODOLOGY

Research Design

This research is based on data from a field test of the survey instruments at an Air Force installation. The Leadership Management and Development Center administered the OAP and the Comprehensive Supervisory Inventory (CSI) to 1680 people at Williams Air Force Base in Arizona. The OAP and the Comprehensive Supervisory Inventory are attitude surveys. The responses are in the form of a scale from zero to seven. As an example the responses to the supervisory questions were: 0 = not applicable, 1 = strongly disagree, 2 = moderately disagree, 3 = slightly disagree, 4 = neither agree or disagree, 5 = slightly agree, 6 = moderately agree, and 7 = strongly agree.

Statistical Procedures

Factor analysis was employed to accomplish data reduction and to transform the data so that the relationship between the supervisor and organizational effectiveness could then be examined by regression analysis and other statistical techniques. A Common Factor Analysis Model, which is concerned with defining the patterns of common variation among a set of

variables was used. A group of variables that are highly intercorrelated with each other (i.e., follow a pattern of variation that is largely the same) are referred to as a factor. For example, if the variables of gross national product per capita, literacy, urbanization, education, and communication are found to be highly intercorrelated with each other, then they could be referred to as a factor called "economic development" (Rummel, 1967). By reducing a number of variables to a common factor, the analysis of data is simplified.

The Comprehensive Supervisory Inventory and the OAP's Supervisory Inventory have a total of 65 variables (questions), many of which could be highly intercorrelated with each other. Factor analysis transforms each group of highly intercorrelated variables into a common factor. This transformation of the supervisory variables into a smaller set of uncorrelated supervisory factors avoids the problem of multicollinearity, so that regression analysis can be used to examine the relationship between the supervisory factors and the organizational effectiveness criteria.

Multicollinearity occurs when the independent variables in a regression analysis are highly correlated. When multicollinearity exists, the coefficient of a particular independent variable can vary greatly, depending on which of the other independent variables are included in the regression equation (Neter, Wasserman, and Whitmore, 1979). This would make it impossible to determine the absolute relationship between a particular supervisory factor and the dependent

variable of perceived productivity, organizational climate, or job satisfaction.

Some of the common terms used in presenting factor analysis results can be defined by explaining the information in Table 3-1. The variables are the questions from the survey instruments. For example, S002 is "My supervisor helps create a healthy and pleasant work atmosphere." The factors are the separate patterns of relationships between the variables. Factors are named from the variables with the highest loadings on that factor. Loadings are the numbers in the rows for each variable under the factors. The loading of a variable on a factor represents the degree and direction of the relationship of that variable with that factor. The percent of variation that a variable and a factor have in common is found by multiplying the squared loading by 100. The eigenvalue of a factor is the sum of the squared loadings on that factor. The eigenvalue of a factor is a measure of the variation accounted for by that factor. A factor's eigenvalue divided by the total number of variables gives the proportion of the total variation in the data accounted for by that factor.

A factor analysis was performed on the data from the LMDC field test of the OAP's Supervisory Inventory and the Comprehensive Supervisory Inventory to identify supervisory factors with eigenvalues greater than or equal to 1.0. The factor analysis computer procedures described in the Statistical Package for the Social Sciences (SPSS) (Nie, Hull, Jenkins, Steinbrenner, and Bent, 1975, pp. 468-513) were used.

TABLE 3-1
Sample Factor Matrix

Variables	Factors			
	1	2	3	4
S002	.03	.33	.47	.60
S005	.04	.14	.59	.08
S008	.02	.42	.48	.50
.	.	.	.	.
.	.	.	.	.
.	.	.	.	.
V437	.79	.01	.00	.02
Eigen-values	10.5	6.8	2.4	1.1

Specifically, the "Principal Factoring with Iteration: PA2" option (Nie et al., 1975, pp. 480-81) of the SPSS subprogram FACTOR was used to accomplish the three steps in factor analysis in the following manner:

- Step 1. Preparation of correlation matrix - the correlation matrix was composed of the correlations between the variables (i.e., questions in the OAP's Supervisory Inventory and the Comprehensive Supervisory Inventory). This type of factoring based on the patterns of variables is called R-factoring or common factor analysis.
- Step 2. Extraction of initial factors - the factors extracted were inferred orthogonal factors with eigenvalues of at least 1.0. Where the eigenvalue for a factor is the sum of the squares of

of the factor's loadings.

Step 3. Rotation to terminal factors - the terminal factor matrix was the result of orthogonal factor rotation using the SPSS VARIMAX option (Nie et al., 1975, p. 485). The VARIMAX option gives an orthogonal rotation that maximizes the variance of the squared loadings in each column (i.e., for each factor).

The input to this factor analysis was the 1680 cases collected by LMDC at Williams Air Force Base. Each case was made up of an individual's responses to the 65 questions (46 from the Comprehensive Supervisory Inventory and 19 from the OAP's Supervisory Inventory) which surveyed the supervisory area. The loadings of each of the variables on each of the seven identified factors with eigenvalues of at least 1.0 were analyzed and four factors were retained for further processing. Three factors were dropped because there were no variables with significant loadings (greater than .50) on them. The factor analysis procedures were repeated with the number of factors limited to four. The variables with the highest loadings on each of the four factors were then processed by the SPSS RELIABILITY subprogram (Hull and Nie, 1979, pp. 110-144).

The RELIABILITY subprogram was used to calculate the Cronbach Coefficient Alpha for each factor's variables and showed which variables could be removed to increase the factor's Cronbach Coefficient Alpha the most. The Cronbach

Coefficient Alpha is an indication of the reliability of the measurement instrument. If all the variation in observed scores is due to errors of measurement, the coefficient alpha is zero. If there is no error of measurement, the coefficient alpha is one. The number of variables associated with each factor were reduced to ten or less by removing the variables which would cause the largest increase in that factor's Cronbach Coefficient Alpha. This reduced the number of variables being considered to 35.

The factor analysis procedures were then repeated on these 35 variables with the number of factors held to four. This factor analysis produced the factor scores for each factor, which were then regressed against factor scores for each of the criteria of perceived productivity, organizational climate, and job satisfaction. These criteria were measured by the corresponding sections of the OAP (Appendices C, D, and E). The SPSS Stepwise Regression (Nie et al., 1975, pp. 320-367) procedures were used.

In stepwise regression the variables are entered into (or may leave) the regression equation one-by-one in a series of regression steps, based on whether they meet the selected minimum F-value of 2.0. The F-value is the ratio of the increase in the variance explained if the variable is entered in the regression equation to the variance from the error term. The variable among those being considered for entry that would explain the most variance is entered at each step. Also at each step the F-value of all variables then in the equation

are examined and one variable at a time may be removed if its F-value is less than the selected minimum of 2.0. Each of the three regression analyses produced a coefficient of multiple determination (R^2) which is the proportionate amount of the variance of each criteria accounted for by the supervisory factors. An R^2 of at least .25 supports the hypothesis for that criterion.

The RELIABILITY subprogram was repeated considering the reduced number of variables. This determined the Cronbach Coefficient Alpha for the questions remaining for each factor (Table 4-5).

To further analyze the relationship between the supervisor and organizational effectiveness, the 1680 case scores for the supervisory, organizational climate, perceived productivity, and job satisfaction questions were each totaled and coded low, medium, or high. Low scores were those more than one standard deviation below the mean. Medium scores were those within one standard deviation of the mean. High scores were those more than one standard deviation above the mean. The SPSS CROSSTABS routine (Nie, et al., 1975) was performed on the coded supervisory scores against the coded scores of each of the three criteria.

Assumptions

The research includes two assumptions.

1. The Likert scale used in the questions provides interval level data.

2. The field test data are representative of the parent population.

CHAPTER IV

RESULTS

Construct Validation

The final factor analysis described above yielded four factors which accounted for 61 percent of the variance in the supervisory data. The first factor which deals with supervisory assistance and ability was extracted from the OAP's Supervisory Inventory. The last three which deal with supervisory style were extracted from the Comprehensive Supervisory Inventory (CSI). Table 4-5 lists the variable loadings for each factor and other pertinent information.

Factor I - Supervisory Assistance and Management Ability

This factor accounted for 30 percent of the variance in the supervisory data and had an eigenvalue of 10.6. This factor is a combination of the two supervisory factors from the OAP's Supervisory Inventory. LMDC calls them Supervisory Communication Climate and Management - Supervision. This factor refers to the supervisor helping employees improve their performance and set goals. It also refers to the supervisor who fully explains procedures to each group member, establishes good work procedures, makes his responsibilities clear to the group, and is a good planner (Table 4-1).

Factor II - Consideration

This factor accounts for 20 percent of the variance in the supervisory data and had an eigenvalue of 6.8. It refers to a supervisor being cooperative and supporting his workers (Table 4-2).

Factor III - Task Oriented

This factor accounts for 8 percent of the variance in the supervisory data and had an eigenvalue of 2.7. It refers to providing close control and firm direction, and applying pressure when individuals do not perform (Table 4-3).

Factor IV - Over-Control

This factor accounts for 3 percent of the variance in the supervisory data and had an eigenvalue of 1.1. It refers to the supervisor spending too much time on minor details, over-controlling employees' work, and requiring paperwork that is not needed for the job (Table 4-4).

Regression Analysis

The four supervisory factors were regressed against each of the three criteria. In these stepwise regressions the supervisory factors were the independent variables and the selected criterion was the dependent variable.

Perceived Productivity

Factor I - Supervisory Assistance and Management Ability accounted for 27.4 percent ($R^2 = .274$) of the variance

TABLE 4-1

Factor I - Supervisory Assistance and Management Ability

OAP Variable Number	Statement
V435	My supervisor always helps me improve my performance.
V412	My supervisor establishes good work procedures.
V431	My supervisor helps me set specific goals.
V445	My supervisor fully explains procedures to each group member.
V413	My supervisor has made his responsibilities clear to the group.
V428	My supervisor explains how my job contributes to the overall mission.
V404	My supervisor is a good planner.
V437	My job performance has improved due to feedback received from my supervisor.
V416	My supervisor performs well under pressure.
V433	My supervisor lets me know when I am doing a good job.
By loadings, highest first	

TABLE 4-2

Factor II - Consideration

CSI Variable Number	Statement
S039	My supervisor is cooperative.
S025	My supervisor is supportive of the people who work for him/her.
S031	My supervisor encourages ideas for improving procedures.
S023	My supervisor genuinely listens when I talk.
S002	My supervisor helps create a healthy and pleasant work atmosphere.
S030	My supervisor considers work group members' opinions in his/her decision making.
S008	My supervisor handles the stress of new situations well.
S032	My supervisor deals efficiently with complex problems.
By loadings, highest first	

TABLE 4-3
Factor III - Task Oriented

CSI Variable Number	Statement
S039	My supervisor provides close control and firm direction.
S037	My supervisor sets procedures and work to be done.
S038	My supervisor applies pressure when individuals do not perform well.
S012	My supervisor drives hard when a job needs to be done.
S011	My supervisor keeps everyone moving quickly about their work.
S033	My supervisor sets standards.
S034	My supervisor's work is well organized.
S022	My supervisor does not hesitate to take direct action when it is called for.
S036	My supervisor is accurate in predicting future requirements.
By loadings, highest first	

TABLE 4-4
Factor IV - Over-Control

CSI Variable Number	Statement
S005	My supervisor spends too much time in minor details.
S046	My supervisor requires paperwork that is not needed for the job.
S014	My supervisor jumps the gun on anticipated changes from higher levels of management.
S029	My supervisor over-controls my work.
S040	My supervisor is more concerned about promotion than the job.
S006	My supervisor is the group leader only by title.
S021	My supervisor has difficulty getting his/her people to work toward the organization's goals.
S042	My supervisor controls the pace at which I work.
By loadings, highest first	

TABLE 4-5
Detailed Factor Analyses

Factor I Eigenvalue 10.6 Cronbach Coefficient Alpha .951			Factor II Eigenvalue 6.8 Cronbach Coefficient Alpha .940		
Variable Number	Loadings	Alpha If Item Deleted	Variable Number	Loadings	Alpha If Item Deleted
V435	.84	.946	S016	.77	.931
V412	.84	.946	S025	.76	.929
V431	.83	.945	S031	.75	.932
V445	.83	.945	S023	.74	.932
V413	.83	.945	S002	.72	.931
V428	.81	.945	S030	.71	.935
V404	.79	.946	S008	.64	.932
V437	.79	.946	S032	.64	.933
V416	.78	.947			
V433	.77	.947			
Factor III Eigenvalue 2.7 Cronbach Coefficient Alpha .866			Factor IV Eigenvalue 1.1 Cronbach Coefficient Alpha .801		
Variable Number	Loadings	Alpha If Item Deleted	Variable Number	Loadings	Alpha If Item Deleted
S039	.70	.845	S005	.57	.776
S037	.63	.850	S046	.53	.779
S038	.61	.862	S014	.52	.779
S012	.57	.855	S029	.51	.777
S011	.56	.861	S040	.50	.768
S033	.54	.841	S006	.49	.772
S034	.45	.846	S021	.43	.781
S022	.45	.851	S042	.39	.795
S036	.44	.851			

in perceived productivity. Factor IV - Over-Control was the only other factor to meet the minimum F-value of 2.0 to enter the regression equation with Factor I. With both Factor I and Factor IV in the regression equation, R^2 increased to .279. The hypothesis that supervisory factors account for at least 25 percent of the variance in perceived productivity is supported. The correlation coefficient of Factor I - Supervisory Assistance and Management Ability was .50, which reflects a positive correlation between this factor and perceived productivity. The correlation coefficient of Factor IV- Over-Control was -.08, which reflects a weak inverse relationship between this factor and perceived productivity.

Organizational Climate

Factor I - Supervisory Assistance and Management Ability accounted for 39.2 percent ($R^2 = .382$) of the variance in organizational climate. Factor II - Consideration was the next variable to enter this regression equation. With Factor I and Factor II both in the equation, R^2 increased to .399. Factor IV - Over-Control was the last variable to meet the minimum 2.0 F-value and was entered into the regression equation. With Factor I, Factor II, and Factor IV all in the equation, R^2 increased to .400. The hypothesis that the supervisory factors account for at least 25 percent of the variance in organizational climate is supported. The correlation coefficient of Factor I - Supervisory Assistance and Management Ability was .63, which reflects a positive correlation between this factor and organizational climate. The correlation coefficient

of Factor II - Consideration was .08, which reflects a small positive correlation between this factor and organizational climate. The correlation coefficient of Factor IV - Over-Control was -.04. However, a 95 percent confidence interval for Factor IV's correlation coefficient was -.08 to .009, which spans zero. Therefore, the hypothesis that there is no relation between Factor IV and organizational climate would not be rejected with a risk of being wrong of 5 percent.

Job Satisfaction

Factor I - Supervisory Assistance and Management Ability accounted for 29.8 percent of the variance in job satisfaction. Factor II - Consideration and Factor IV - Over-Control met the minimum 2.0 F-value to enter the regression equation in-turn. With Factor I and Factor II in the equation, R^2 was .305. With Factor I, Factor II, and Factor IV in the equation, R^2 was .307. The hypothesis that the supervisory factors account for at least 25 percent of the variance in job satisfaction is supported. The correlation coefficient of Factor I - Supervisory Assistance and Management Ability was .52, which reflects a positive correlation between this factor and job satisfaction. The correlation coefficient of Factor II - Consideration was .07, which reflects a weak positive correlation between this factor and job satisfaction. The correlation coefficient of Factor IV - Over-Control was -.05, which reflects a weak negative correlation between this factor and job satisfaction.

Significance of Supervisory Factors

The hypothesis that there is no relation between each of the independent variables (supervisory factors) which entered the regression equations and the dependent variable (criterion) in all but one of the above regression analyses would be rejected at the 95 percent confidence level. The rejection of these hypotheses is based on the significance of the F-value for each factor's coefficient. The one exception was Factor IV in the organizational climate equation. Factor II - Consideration was statistically significant when entered in the regression equations with Factor I - Supervisory Assistance and Management Ability. Factor IV - Over-Control was statistically significant in two of the equations. However, from a practical standpoint, Factor II and Factor IV from the Comprehensive Supervisory Inventory did not increase the amount of variance explained by Factor I from the OAP's Supervisory Inventory enough to justify adding the Factor II and Factor IV questions to the OAP. Factor III - Task Oriented from the Comprehensive Supervisory Inventory did not meet the minimum 2.0 F-value to enter any of the regression equations. Therefore, the Factor II questions would not increase the amount of variance explained in the three criteria by Factor I from the OAP's Supervisory Inventory.

Crosstabulation Analysis

Factor I - Supervisory Assistance and Management Ability from the OAP's Supervisory Inventory was selected to

examine the relationship between the supervisor and organizational effectiveness. Factor I was selected because the results of the above regression analyses showed that this factor explained almost all of the variance in the three criteria that was explained by the supervisory factors. The questions in the OAP's Supervisory Inventory, Perceived Productivity Inventory, Organizational Climate Inventory, and Job Satisfaction Questionnaire are all written so that a high response indicates "good" and a low one "bad." This made it possible to total the responses for each area for each case and then code them low, medium, or high. Low is defined as being more than one standard deviation below the mean. Medium is within one standard deviation of the mean, and high is more than one standard deviation above the mean.

The coded cases were processed through the SPSS CROSSTABS routine (Nie et al., 1975) to produce crosstabulations of supervisory Factor I - Supervisory Assistance and Management Ability by each of the criterion. Of the 293 cases with low scores on supervisory Factor I, 37.5 percent or 110 were also low on job satisfaction, while only 1.4 percent were high on job satisfaction (Table 4-6).

The relationship between the lows and highs was not quite as strong between supervisory Factor I and perceived productivity (Table 4-7).

The relationship between cases with low scores on Factor I and organizational climate was very strong (Table 4-8). Of the 293 cases with low scores on Factor I, 156 or 53 percent

TABLE 4-6
Supervisory Factor I By Job Satisfaction

Factor I	Job Satisfaction			Total
	Low	Med	High	
Low	110	179	4	293
Med	90	814	128	1032
High	<u>8</u>	<u>184</u>	<u>163</u>	<u>355</u>
Total	208	1177	295	1680

TABLE 4-7
Supervisory Factor I By Perceived Productivity

Factor I	Perceived Productivity			Total
	Low	Med	High	
Low	122	156	15	293
Med	110	799	123	1023
High	<u>12</u>	<u>200</u>	<u>243</u>	<u>355</u>
Total	244	1155	281	1680

TABLE 4-8
Supervisory Factor I By Organizational Climate

Factor I	Organizational Climate			Total
	Low	Med	High	
Low	156	135	2	293
Med	120	787	125	1032
High	<u>17</u>	<u>163</u>	<u>175</u>	<u>355</u>
Total	293	1085	302	1680

also had low scores on organizational climate. A similar strong relationship also existed for cases with high Factor I scores and high scores for organizational climate.

CHAPTER V

SUMMARY AND RECOMMENDATIONS

Four supervisory factors with eigenvalues greater than 1.0 were extracted from the supervisory data. Three were from the Comprehensive Supervisory Inventory and one from the OAP's Supervisory Inventory. While Factor II - Consideration and Factor IV - Over-Control from the Comprehensive Supervisory Inventory were statistically significant for two of the criteria, they provided no practical increase to the amount of variance explained by Factor I - Supervisory Assistance and Management Ability from the OAP's Supervisory Inventory. It is not recommended to add the Comprehensive Supervisory questions to the OAP. The questions with the highest loadings on the three factors extracted from the Comprehensive Supervisory Inventory did have high reliability as indicated by their Cronbach Coefficient Alphas and are recommended for use in other research on supervisory styles.

Factor I - Supervisory Assistance and Management Ability had the strongest correlation to all three organizational effectiveness criteria. The correlation coefficient of Factor I predicts that a one-unit change in Factor I will result in from a half of a unit to six-tenths of a unit change in all three criteria. The correlation coefficient of Factor I for all three criteria was positive, therefore, the

change is expected to be in the same direction.

The correlation coefficient of Factor II - Consideration was statistically significant for the criteria of organizational climate and job satisfaction. For both of these criteria, the positive correlation coefficient of Factor II predicts that a change of one unit in Factor II will result in only a change of less than one-tenth of a unit in the two criteria. The change is expected to be in the same direction. The correlation coefficient of Factor IV - Over-Control was statistically significant for the criteria of perceived productivity and job satisfaction. The predicted change in these criteria for a one-unit change in Factor IV is also less than one-tenth of a unit. The correlation coefficient of Factor IV for these criteria is negative; therefore, the change is expected to be in the opposite direction.

Based on the stronger correlation of Factor I - Supervisory Assistance and Management Ability to the organizational effectiveness criteria, the Air Force should concentrate its training efforts on the areas that make up this factor. The other three supervisory factors of Consideration, Task Oriented and Over-Control are relatively less important.

The relationship between the supervisor as represented by supervisory Factor I and the organizational effectiveness criteria was particularly strong when the supervisory scores were either low or high. The chance of a case with a low supervisory score having a high score for one of the criteria was very small. If the supervisory score was

high, then the chance of having a low score for the criteria was very small.

This research was based on Hendrix's Three-Component Organizational Effectiveness Model, which defines organizational effectiveness as a function of the criterion selected, the managerial style employed, and the situational environment. This research has focused on the relationships between two of these components--the criterion selected and the managerial style employed. The research analysis found a significant correlation between these two components. Further examination of the interactions and relationships between all of the model's components is recommended as a rich area for future research.

APPENDIX A
COMPREHENSIVE SUPERVISORY INVENTORY

S001. This statement is used to identify which additional survey you are taking. Mark statement 1 as follows:

1. (0) (1) ☒ (3) (4) (5) (6) (7)

Instructions

The statements below describe characteristics of managers or supervisors. Indicate your agreement by choosing the statement below which best represents your attitude concerning your supervisor.

0 = Not applicable	4 = Neither agree nor disagree
1 = Strongly disagree	5 = Slightly agree
2 = Moderately disagree	6 = Moderately agree
3 = Slightly disagree	7 = Strongly agree

Select the corresponding number and mark your answers on the separate answer sheet.

- S002. My supervisor helps create a healthy and pleasant work atmosphere.
- S003. My supervisor permits differences of opinion to be expressed in group meetings.
- S004. My supervisor asks members for their ideas on work load distribution.
- S005. My supervisor spend too much time in minor details.
- S006. My supervisor is the group leader only by title.
- S007. My supervisor maintains a proper supervisor-subordinate relationship.
- S008. My supervisor handles the stress of new situations well.
- S009. My supervisor focuses on major progress points not specific events.
- S010. My supervisor schedules work no more than one week ahead.
- S011. My supervisor keeps everyone moving quickly about their work.

- S012. My supervisor drives hard when a job needs to be done.
- S013. My supervisor ignores mistakes that people make.
- S014. My supervisor jumps the gun on anticipated changes from higher levels of management.
- S015. My supervisor considers the organization's objectives when planning.
- S016. My supervisor is cooperative.
- S017. My supervisor helps me develop my work skills.
- S018. My supervisor works at improving his/her work skills.
- S019. My supervisor provides challenging work opportunities.
- S020. My supervisor resolves conflict within the group.
- S021. My supervisor has difficulty getting his/her people to work toward the organization's goals.
- S022. My supervisor does not hesitate to take direct action when it is called for.
- S023. My supervisor genuinely listens when I talk.
- S024. My supervisor allows me to evaluate my own activities.
- S025. My supervisor is supportive of the people who work for him/her.
- S026. My supervisor is consistent in his/her managerial behavior.
- S027. My supervisor supplies notification of changes in advance.
- S028. My supervisor emphasizes the need to accomplish more than other groups.
- S029. My supervisor over-controls my work.
- S030. My supervisor considers work group members' opinions in his/her decision making.
- S031. My supervisor encourages ideas for improving procedures.
- S032. My supervisor deals efficiently with complex problems.
- S033. My supervisor sets standards.

- S034. My supervisor's work is well organized.
- S035. My supervisor shows a great amount of neatness in his/her work.
- S036. My supervisor is accurate in predicting future requirements.
- S037. My supervisor sets the procedures and work to be done.
- S038. My supervisor applies pressure when individuals do not perform well.
- S039. My supervisor provides close control and firm direction.
- S040. My supervisor is more concerned about promotion than the job.
- S041. My supervisor rarely allows me the opportunity to decide for myself how to accomplish my job.
- S042. My supervisor controls the pace at which I work.
- S043. My supervisor gives me the opportunity to vary my work methods and procedures.
- S044. The people affected by a decision are asked for their ideas before the decisions are made.
- S045. My supervisor does not require me to violate my sense of "right or wrong" (ethical standards).
- S046. My supervisor requires paperwork that is not needed for the job.
- S047. My supervisor supports my participation in self-improvement efforts.

APPENDIX B
OAP'S SUPERVISORY INVENTORY

Instructions

The statements below describe characteristics of managers or supervisors. Indicate your agreement by choosing the statement below which best represents your attitude concerning your supervisor.

- | | |
|-------------------------|--------------------------------|
| 0 = Not applicable | 4 = Neither agree nor disagree |
| 1 = Strongly disagree | 5 = Slightly agree |
| 2 = Moderately disagree | 6 = Moderately agree |
| 3 = Slightly disagree | 7 = Strongly agree |

Select the corresponding number and mark your answers on the separate answer sheet.

- V404. My supervisor is a good planner.
- V405. My supervisor sets high performance standards.
- V410. My supervisor encourages teamwork.
- V411. My supervisor represents the group at all times.
- V412. My supervisor establishes good work procedures.
- V413. My supervisor has made his responsibilities clear to the group.
- V445. My supervisor fully explains procedures to each group member.
- V416. My supervisor performs well under pressure.
- V424. My supervisor takes time to help me when needed.
- V434. My supervisor lets me know when I am doing a poor job.
- V439. When I need technical advice, I usually go to my supervisor.
- V426. My supervisor asks members for their ideas on task improvements.
- V428. My supervisor explains how my job contributes to the overall mission.
- V431. My supervisor helps me set specific goals.
- V433. My supervisor lets me know when I am doing a good job.

- V435. My supervisor always helps me improve my performance.
- V436. My supervisor insures that I get job-related training when needed.
- V437. My job performance has improved due to feedback received from my supervisor.
- V442. My supervisor frequently gives me feedback on how well I am doing my job.

APPENDIX C
OAP'S PERCEIVED PRODUCTIVITY INVENTORY

Instructions

The statements below deal with the output of your work group. For some jobs certain statements may not be applicable. Should this be the case for your work group, then you should select the not applicable statement coded "0" below. Indicate your agreement with the statement by selecting the answer which best represents your attitude concerning your work group.

- | | |
|-------------------------|--------------------------------|
| 0 = Not applicable | 4 = Neither agree nor disagree |
| 1 = Strongly disagree | 5 = Slightly agree |
| 2 = Moderately disagree | 6 = Moderately agree |
| 3 = Slightly disagree | 7 = Strongly agree |

- V259. The quantity of output of your work group is very high.
- V260. The quality of output of your work group is very high.
- V261. When high priority work arises, such as short suspenses, crash programs, and schedule changes, the people in my work group do an outstanding job in handling these situations.
- V264. Your work group always gets maximum output from available resources (e.g., personnel and material).
- V265. Your work group's performance in comparison to similar work groups is very high.

APPENDIX D
OAP'S ORGANIZATIONAL CLIMATE INVENTORY

Instructions

Below are items which describe characteristics of your organization. Indicate your agreement by choosing the statement below which best represents your opinion concerning your organization.

- | | |
|--------------------------------|----------------------|
| 1 = Strongly disagree | 5 = Slightly agree |
| 2 = Moderately disagree | 6 = Moderately agree |
| 3 = Slightly disagree | 7 = Strongly agree |
| 4 = Neither agree nor disagree | |

Select the corresponding number and enter it on the separate answer sheet.

- V300. Ideas developed by my work group are readily accepted by management personnel above my supervisor.
- V301. My organization provides all the necessary information for me to do my job effectively.
- V302. My organization provides adequate information to my work group.
- V303. My work group is usually aware of important events and situations.
- V304. My complaints are aired satisfactorily.
- V309. The information in my organization is widely shared so that those needing it have it available.
- V305. My organization is very interested in the attitudes of the group members toward their jobs.
- V306. My organization has a very strong interest in the welfare of its people.
- V307. I am very proud to work for this organization.
- V308. I feel responsible to my organization in accomplishing its mission.
- V310. Personnel in my unit are recognized for outstanding performance.
- V311. I am usually given the opportunity to show or demonstrate my work to others.

- V312. There is a high spirit of teamwork among my co-workers.
- V313. There is outstanding cooperation between work groups of my organization.
- V315. I feel motivated to contribute my best efforts to the mission of my organization.
- V316. My organization rewards individuals based on performance.

APPENDIX E
OAP'S JOB SATISFACTION QUESTIONNAIRE

Instructions

The items below relate to your job or the Air Force as a profession. Indicate how satisfied or dissatisfied you are with each item. Choose the statement below which best describes your degree of satisfaction or dissatisfaction.

0 = Not applicable	4 = Neither satisfied nor dissatisfied
1 = Extremely dissatisfied	5 = Slightly satisfied
2 = Moderately dissatisfied	6 = Moderately satisfied
3 = Slightly dissatisfied	7 = Extremely satisfied

V705. Feeling of Helpfulness.

The chance to help people and improve their welfare through the performance of my job. The importance of my job performance to the welfare of others.

V709. Co-worker Relationships.

My amount of effort compared to the effort of my co-workers, the extent to which my co-workers share the load, and the spirit of teamwork which exists among my co-workers.

V710. Family Attitude Toward Job.

The recognition and the pride my family has in the work I do.

V717. Work Schedule.

My work schedule; flexibility and regularity of my work schedule; the number of hours I work per week.

V718. Job Security.

V719. Acquired Valuable Skills.

The chance to acquire valuable skills in my job which prepare me for future opportunities.

V723. My Job as a Whole.

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