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AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

HIERARCHICAL LEADERSHIP BEHAVIORS OF USAF

MAJORS AT AIR COMMAND AND STAFF COLLEGE

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by

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A Research Report Submitted to the Faculty

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Preface

The scientific method when applied to the social sciences can unearth some fascinating results. I had always felt about leadership much the same way many people feel about art, "I may not know how to define it, but I know it when I see it." Obviously I was not alone in that understanding about leadership. In fact, many hours of bar talk had hinted around the edges of that same feeling about leadership. But I attempted in this paper to go farther than simply "knowing it when I see it." The age-old question of whether leaders are made or born seems to have been settled for many in the social sciences. But all the scientific endeavors into defining and discovering the field seemed to be void of the issue of character. I am afraid that this paper follows the now well-established path of reviewing "that which makes leadership" without investigating the vital twin issues of character and integrity. So if you are seeking an end to the soul-less march of science—it is not herein.

But the soul-less march of science can add to the secular world-view body of human knowledge and that is something I have tired to do. There are many wherefores and whys that are as of yet unknown, especially within the "contracting universe" of the Field Grade officer in the USAF. That is where I seek some small but new knowledge.

But the shedding of darkness comes with a toll of long-hours writing and re-writing and sharing for critique and review with academic betters. This project would have been completely impossible without the able, patient, and intellectually rigorous support of Dr

John D. Garvin, my faculty research advisor at ACSC. But even his patience has been out-shined by the patience of my family and my heartfelt thanks goes out to them in the hopes that their gift of patience to me I may someday be able to repay.

Additionally, I need to express my sincere thanks to my research cohorts conducting parallel investigations into this topic while attending ACSC: Air Force Majors Warren Berry, Lista Benson, and Arnel Enriquez and Army Major Dierdre Dixon. Particularly Major Enriquez for his work taking the initial scythe to the literature review process and his efforts inputting all the data into the SPSS, and Major Berry for his help in interpreting the statistics.

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Abstract

How does one mentor leadership? What behaviors should be mentored for more effective leadership and are those behaviors different at various organizational levels? Jacob and Jaques (1985) found that organizations require different hierarchical leadership behaviors at different levels of the organization. Yukl (1994) produced an integrated taxonomy useful across all organizational levels for determining critical leadership behaviors. The purpose of this investigation is to determine the critical leadership behaviors for Air Force majors and the two major career tracks of "operations" and "support."

This investigation used a modified off-the-shelf survey by Yukl known as the Managerial Practices Survey (MPS). 302 Majors at ACSC AY 97-98 completed and returned the survey. Of the eleven behaviors on the MPS, four were found to be the most important: Informing ($M = 4.4$), Planning and Organizing ($M = 4.2$), Problem Solving ($M = 4.2$), and Recognizing and Rewarding ($M = 4.1$).

This study made tentative first steps towards empirically determining what behaviors Air Force majors perceive to be critical to job accomplishment and successful leadership. It also discovered significant differences between operations and support officer views on the importance of different leadership behaviors. Further replicating studies with company grade officers and Lieutenant Colonels are needed before the question of "where" the Air Force major is on hierarchical organizational leadership models.

Chapter 1

Introduction

First, I see mentoring as a fundamental responsibility of all Air Force officers.[1]

—General Ronald R. Fogleman, Former Air Force Chief of Staff

The Air Force fighter pilots of tomorrow are being shaped by today's fighter pilots. Those with more skill and experience shape the skills and experiences of newer pilots through lengthy briefs, rigorous "no-holds" barred debriefs, and informal sessions in squadron bars and security vaults across the country. These informal mentoring sessions are often as important to the fighter pilot's long-term development as the formal briefs and debriefs. Techniques and tactics are passed via diagrams on napkins and dry erase boards with personalized attention to what the specific individual trainee needs. The individual mentoring process yields rapid feedback in the sorties of the next days as youngsters try to emulate what the old man has passed on. Mentoring is an educational principal in flight training, but can it be applied elsewhere in an officer's development? More specifically what behaviors do we need to mentor to develop more effective future leaders? In flying, what to teach is obvious as the indicators of performance (he let me gun him again, or he survived) are clear and unambiguous, but what about leadership? What should be mentored in leadership?

Leadership mentoring may appear unfocused because what behaviors need mentoring at specific levels of leadership development have not been clearly defined.[2] Air Force Instruction 36-3401 mandates that commanders and other supervisors of company grade officers mentor their subordinates, but it does not define or even mention specific leadership behaviors that should be mentored.[3] General Fogleman attests: "We all bear the responsibility to develop our subordinates and to help groom the next generation of Air Force leaders."[4] But what behaviors should be developed to "groom the next generation" is ambiguous. Numerous studies have attempted to describe what leadership behaviors have been effective.[5] Often the numbers of behaviors identified were too numerous to provide useful guidance for leadership development. Yukl (1994), however, has reduced these behaviors to a manageable, meaningful eleven categories that apply across all leadership levels. But what leadership behaviors are more important at varying levels of leadership and how can one control the situational determinants of leader behavior to distill what should be taught at specific leadership levels?

Numerous studies have determined that leadership behaviors are hierarchical different levels of leadership responsibility emphasize different leadership behaviors.[6] Jacobs and Jacques (1989) specified in their model that critical leadership behaviors vary at differing levels within the unit. However, there has been scant attention paid to what particular leadership behaviors are appropriate at differing levels of leadership responsibility.[7] The purpose of this investigation is to determine what leadership behaviors are critical for mid-level Air Force officers, specifically majors.

The results of this research will define critical leadership behaviors for Air Force majors, thereby creating a stronger, more objective mentoring program in the USAF.

Notes

[1] Fogleman, Ronald R. "Remarks to the Air Force Cadet Officer Mentoring Action Program Annual Banquet, Bolling AFB, D.C., Oct 21 1995. Available on line at http://www.af.mil/news/speech.

[2] Air Force Instruction 36-3401, 1 July 1997, *AIR FORCE MENTORING*. Entire publication. Available on-line at http://afpubs.hq.af.mil. This instruction prescribes mentoring for Air Force officers but does not define the behaviors to mentor.

[3] Air Force Instruction 36-3401, 1 July 1997, *AIR FORCE MENTORING*. Entire publication. Available on-line at http://afpubs.hq.af.mil.

[4] Ibid.

[5] See the Studies on leadership done by Ohio State University (1960s), University of Michigan (1960s), and Bowers and Seashore (1960s) to name a few.

[6] Jaques, Elliott, "Requisite Organization: The CEO's Guide to Creative Structure and Leadership" (Cason Hall and Co., 1989), page pairs 1 —10.

[7] Yukl, Gary A., "Leadership in Organizations" (Englewood Cliffs, NJ: Prentice-Hall, 1989), 27.

Chapter 2

Literature Review

The one thing that is necessary is that you know the tools of your trade. In my case, it was knowing the airplane —knowing what the airplane could do at all times.[1]

—Carl "Tooey" Spaatz on Leadership

This chapter will present a review of behavior based leadership research, discuss how organizations are hierarchically arranged, and explore the job role division of the Air Force officer corps based upon the differences between "operations" and "support" personnel.

What to measure for determining effective leadership has been perennially difficult for researchers attempting to distill the essence of leadership. Within the past few decades, behavior-specific theorists have pursued the topic trying to determine what specific behaviors should be developed for more effective leadership. Classifications of leader behavior have ranged from vast lists, over 1800 initially in the Ohio State Studies,[2] to as few as two in number.[3] Additionally clouding the issue is the hierarchical nature of leadership (Jaques, 1989). Specific leader behaviors may be different at various levels within an organization.[4] The line fighter pilot may need different leader behaviors than the Lieutenant Colonel Squadron Commander.

The pursuit of "what to measure" for effective leadership behavior is further complicated by divisions within the Air Force Officer Corps with regards to the nature of

work and span of control. The fighter pilot major may supervise anywhere from zero to fifteen people whereas his maintenance counterpart may supervise as many as two hundred personnel. The fighter pilot may be prized for his technical expertise but the maintenance officer is valued for his ability to harness the technical expertise of those who work for him. Differences in span of control and the nature of leadership tasks may necessitate different critical leadership behaviors for different career fields.

What leadership behaviors to measure for effective leadership is the first challenge for this research. The second concern is how to control for the situation or leadership level when evaluating those leadership behaviors. Finally, where the individual serves in the organizational leadership structure and the specific nature of the job are critical for determining the requisite leadership skills and behaviors. The two central tenants for this study are "what" behaviors should be mentored to determine effective leadership, and at what "level" of the organization are those leadership skills predominant.

What Behaviors to Measure for Effective Leadership

To understand behavior-based leadership research requires familiarity with two classic studies, those of Ohio State University (OSU) and the University of Michigan. Additionally, it is necessary to have a working knowledge of a contemporary leader behavior taxonomy by Yukl (1994).

Ohio State University Leadership Studies

Leadership research based on leader behaviors has made significant progress toward identifying what behaviors result in effective leadership. The seminal research efforts in the field are a series of Ohio State University (1950's -1960's) and University of

Michigan leadership studies that attempted to define what behaviors caused effective leadership. The Ohio State studies used questionnaires to determine what leader behaviors were most effective. Subordinates categorized leadership behavior based on how it made the subordinates feel. The studies originally identified over 1800 specific leadership behaviors. Eventually these were pared down to 150 items.[5] Included in this list were behaviors like doing personal favors (for subordinates), listening, criticizing inferior work, and assigning tasks. However, the relationship direction between the leaders' behavior and the work accomplished was unclear. Did specific behaviors cause the subordinates to work more efficiently or was it the other way around? Unfortunately, it was unclear which behavior was causing which response from the subordinates or even if a causal relationship existed at all.[6]

University of Michigan Leadership Studies

While the Ohio State studies tried to determine what behaviors made for good leadership, the University of Michigan was concurrently attacking the problem from a different methodology. The Michigan studies attempted to determine the causal relationships between "leader behavior, group processes, and measures of performance."[7] Did leader behavior affect group processes thereby creating good performance on the part of the group? Or did good performance on the part of the group create a corresponding reaction from the leader, which could be construed erroneously as having caused the good group performance? Although the Michigan studies never successfully answered these questions, they did conclude that the difference between effective and ineffective leadership resided in how leaders applied various behaviors in three variables: tasks, relationships, and participation.[8] Categorizing behaviors into three

categories, task, relationship, and participating was more manageable than Ohio States

150 behaviors, however it was still unclear what specific behaviors were truly causal for

more effective leadership.[9]

Yukl's Taxonomy and the Managerial Practices Survey

Obviously 150 different behaviors were too many to use for dissecting more

effective leader behavior, but too few categories of behavior threatened to omit many

important areas.   There had to be some middle ground for a taxonomy that was

comprehensive while simultaneously not being so large as to be too cumbersome.

Several taxonomies resulted describing managerial behavior, leader behavior, observed

managerial activities, and behavioral position responsibilities.   Many of the behaviors

were included in all of the taxonomies even though they were often expressed in different

ways.   Yukl (1994) attempted to integrate several different taxonomies into one that

covered all the major preceding studies.[10] The resulting taxonomy includes eleven

categories of behaviors (Figure 1).   A paper assessed these behaviors and pencil survey

developed by Yukl called the Managerial Practices Survey (MPS).

Yukl's taxonomy included four umbrella categories: Giving and Seeking

Information, Making Decisions, Building Relationships, and Influencing People.   The

four umbrella categories are composed of eleven specific behavior-categories as

illustrated in Figure 1. Detailed definitions for each behavior are listed in Appendix A.
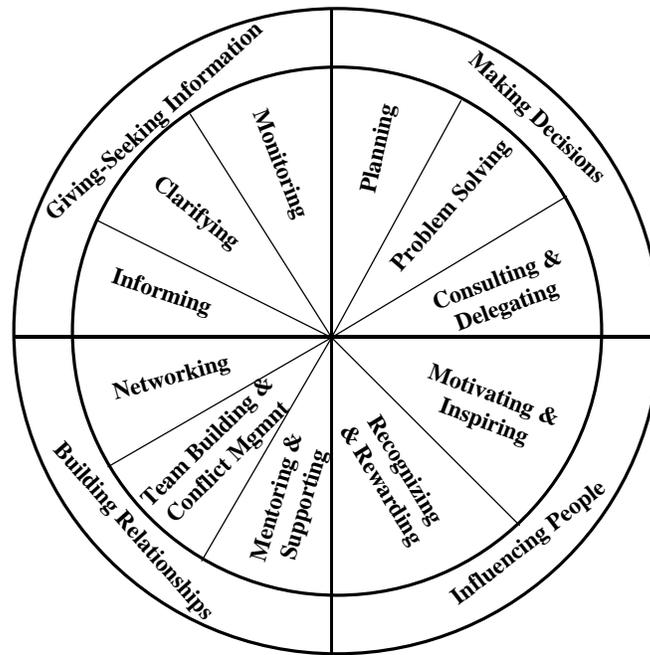
Figure 1. Yukl's Taxonomy of Leadership Behavior Categories

Yukl's taxonomy is important because it reduced ambiguity in previous leadership behavior research by limiting and refining categories of behavior. His work enabled researchers to review over thirty years of data and correlate behaviors that may have been originally listed by a different name into universal categories. By integrating the previous taxonomies he was able to combine over thirty years of research and greatly expand the knowledge in the field. More importantly he was able to establish causal relationships between behaviors and effective leadership. Yukl's taxonomy and the MPS went through over ten years of validation. His behavior scales have been widely accepted as valid (studies from 1984 to 1988 showing greater than 90 percent correlation.)[11] In short, over ten years and over a dozen studies were performed all of which attested to the validity of the MPS and Yukl's taxonomy to perform that which it

was designed to do: "To identify and measure categories of managerial behavior important for managerial effectiveness." [12]

Yukl is important to this study because his taxonomy defined what should be measured when assessing good leadership. The MPS will be used in this study to determine what behavior Air Force majors consider important for effective leadership. Still lacking, however are situational controls for variables such as span of control and the nature of work. These are addressed as hierarchical levels and the nature of work. For this study the hierarchical level is controlled at the rank of major in the USAF and the nature of work is accounted for by the "operations" versus "support" division.

Situational Controls of Leadership Behavior Variables

Not all leadership is of the same nature. Many different skills are needed to effectively lead people and organizations. Those skills will vary in importance at different levels within the organization. Indeed, the varying levels in organizations are a result of the different leadership behaviors required at different levels within the organization[13]. In other words, the different levels in organizations are derived from how those different parts of organizations need to be led. Hierarchical organizational models have been developed to describe the different skills or leadership behaviors at various organizational levels. Two such models are the Katz hierarchy and its successor the Stratified Systems Theory (SST).

Katz Hierarchy

Katz (1950) proposed a leadership hierarchy designed to differentiate skills that would predominate at various levels within an organization. He developed three broad

categories of skills that he labeled technical, human, and conceptual.[14] Technical skills

are job related to immediate task accomplishment such as flying a fighter or repairing an

airplane. Human skills relate to interpersonal communication and are consistent with the

OSU category of "consideration." Conceptual skills involved abstract thinking and were

distinct from the previous two categories. Katz proposed that as an individual rises in an

organization, the need for technical skill decrease, the importance of conceptual skill

increase and the need for human (or interpersonal) skills remain relatively constant.[15]

Katz did not empirically validate his categories, but subsequent work by Mann did

validate Katz's proposal.[16] The Katz hierarchy was seminal in research efforts that

categorized the importance of skills at different levels of leadership responsibility.

Further studies along that line resulted in the Stratified Systems Theory.

Stratified Systems Theory

The Stratified Systems theory proposes that organizations have seven different

levels, which can be grouped into three domains. The highest domain is the systems

domain, followed by the organizational domain and lastly the production domain.

Further illustrations of these domains and the strata within them are in Table 1. As

individuals climb the organizational ladder, they perform different tasks that are more

and more complex.[17] Many of the leadership tasks required at one level become less

important at the next level of leadership. Two critical variables are time on task and

complexity. In fact the time on task or time span of work increases dramatically as one

goes up the leadership ladder of the organization. The cognitive difficulties of the tasks

are also postulated to increase as the time-span of the work considered increases. The

increased cognitive requirements do not replace the cognitive difficulties of previous

levels but are added cumulatively to the leaders thought processes.[18] Leadership tasks or

behaviors for effective leading appear different depending on the leader's organizational

level. This study will attempt to see what those behaviors are at the Air Force pay grade

of 0-4. See Table 1.

Table 1. Stratified Systems Theory Functional Domains

Stratum	Time Span	Functional Domain
VII (Corporation)	20 years	Systems Domain —Operates in a nearly unbounded world environment, identifies feasible futures,
VI (Group)	10 years	develops consensus of specific futures to create, and builds required resource bases to create whole systems that can function in the environment. Creates a corporate culture and value system compatible with social values and culture to serve as a basis for organizational policies and climate.
V (Company)	5 years	Organizational Domain —Individuals at stratum V operate bounded open systems thus created, assisted
IV (Division)	2 years	by individuals at stratum IV in managing adaptation of those systems within the environment by modification/maintenance/fine tuning of internal processes and climate and by oversight of subsystems.
III (Department)	1 year	Production Domain —Runs face-to-face (mutual recognition or mutual knowledge) sub-systems
II (Section; I (Shop Floor)	3 months	units, or groups engaged in specific differentiated functions but interdependent with other units or groups, limited by context and boundaries set within the larger system.

Source: Jacobs and Jacques, *Leadership in Complex Systems*, *Human Productivity Enhancement*, Praeger Publishers, 1987, p.16.

In 1994 the organizational stratification of the Stratified Systems Theory was applied

to the U.S. Army in DA Pamphlet 600-80. The pamphlet "Executive Leadership" sought

to develop a construct through which senior leaders in the Army could view their

leadership environment. It concluded that leaders progress through three leadership

levels, much like the domains of the SST, each "with systematic changes in the nature of

leadership tasks and the associated complexity of issues involved in decision-making"[19](Figure 2). The levels are known as Direct, Organizational, and Executive. USDAP 600-80 attempts to describe the types of leadership behaviors and skills that are critical at each level of leadership. Technical Skills include "…solving well-defined problems, and performing specific tasks and missions."[20] Interpersonal skills emphasize the ability to communicate effectively.[21] Conceptual Skills include Environmental Scanning, Decision Making, and Reducing Complexity.[22] The model has not been empirically validated. The Direct level emphasizes direct control of work, the organizational level includes more conceptual tasking, and the Executive level emphasizes conceptual tasks.[23] The USDAP 600-80 model would be more instructive for leadership development if it were empirically validated. This study will attempt to partially validate that model by identifying the distinct skills required of an Air Force Major. The relative importance of the different behaviors correlates to Katz' theory.

LEVELS	SKILL CATEGORIES		
INDIRECT Executive		Interpersonal	Conceptual
Organizational	Technical		
DIRECT			

Source: US DAP 600-80, p. 14.

Figure 2. US DAP 600-80 Leadership Model

Strategic Leadership Development Inventory

In 1995 the Army culminated its research with the designers of the SST, Jacobs and Jaques, and applied the SST specifically to the Army with empirically derived descriptions of critical behaviors for senior level army leadership.[24] The resulting product was the Strategic Leadership Development Inventory. The SLDI divides leadership behaviors into three categories: Conceptual Skills and Abilities, Positive Attributes, and Negative Attributes. (Appendix C) The inventory furthered the research significantly for empirically derived leadership behaviors; unfortunately it concentrated only on the strategic level of leadership and made no attempt at applying those leadership skills among an integrated taxonomy applicable across the lower two levels of the hierarchy.

Numerous studies have been accomplished at the strategic level to determine critical leadership behaviors. Additionally, the Direct level has been investigated in numerous master's theses including Morabito (1985), Jennings (1991), and Hurry (1995), but a significant void still exists at the Organizational or mid-level of leadership.[25] This research project attempts to fill this gap by identifying those self-reported behaviors by USAF majors that have proven critical to effective leadership at the junior field grade and senior company grade officer level.

Operations versus Support

The Air Force divides officers in two major career tracks of operations and support. The operators can broadly be defined as those who actually apply combat power and the supporters are those who make the first possible. There are significant differences in time-span of work and span of control between operations and support. The operator

may reach the rank of major before he supervises more than five or six people, whereas his support counterpart often supervises numerous people as early as a lieutenant or junior captain. Additionally the time-span of the projects supervised can vary significantly between operations and support with support officers being much more likely to supervise longer term projects than operators.

However there still has been little effort at distinguishing the differences (if any) that exist between major career tracks (operations versus support). This study will determine the critical leadership behaviors for Air Force majors and report what differences exist in the nature of leadership between operations and support.

Finally the nature of the work is different at different levels in organizations because organizations themselves (and the levels within them) are not homogeneous. Different expertise, responsibility and roles exist both between organizational levels and within organizational levels. For example the captain fighter pilot's leadership tasks will concentrate much more highly on expertise as a fighter pilot but his maintenance officer counterpart would concentrate more on managing people and resources than on physically maintaining aircraft. Therefore this study will explore the differences (if any) between the operations and support career tracks.

The Air Force defines operators as any member with an Air Force Specialty Code beginning with a one. The Air Force Specialty codes have four primary discriminators and for purposes of this study operators will be defined as anyone with an AFSC of 1XXX. Operators will include all pilots (11XX) Navigators and Weapons Systems Officers (12XX), all Air Force Space Command operators (13XX), Intel officers (14XX), Weather officers (15XX) and Operations generalists (16XX). Support officers

encompass all other AFSCs except 4XXX (medical personnel are in a separate category from operations and support). This breakdown will divide the Air Force with a ratio of about 40 percent operators and 60 percent support.[26] The differences in time-span of work, and number of people supervised should indicate differences in those leadership behaviors which the different groups self report as most critical.

Summary

Leadership behavior-based research has come along way in the past forty years. The seminal research in the field were the near concurrent studies done in the late fifties and early sixties at Ohio State University and the University of Michigan. Both of these studies were weak in determining causality. Yukl managed to use factor analysis and critical incident research methods to both determine causality and to describe a set of leadership behaviors that were applicable across the leadership spectrum from top to bottom. These behaviors were also specific enough to have meaning in teaching leadership. Yukl also developed and validated a Managerial Practices Survey using his taxonomy of eleven behaviors to determine which behaviors were most important to effective leadership. His taxonomy proved relevant across organizational boundaries, opening new avenues for research. The MPS is how this study will measure leadership requirements; it provides the "what" to measure.

The Stratified Systems Theory and the SLDI both indicated that organizations tend to have a hierarchical nature. Leadership tasks performed at the bottom of the organization were significantly different than tasks performed at the top of the organization. Some study has been performed in the Army to empirically determine leadership behaviors at the strategic level. But there is a void at the organizational level

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and this void is particularly apparent in the Air Force where little to no research appears to have been attempted. Furthermore, the different leadership tasks between major career tracks appear to have not been studied. The purpose of this investigation is to determine what leadership behaviors are critical for mid-level Air Force officers, specifically majors, including the differences (if any) between operations and support officers.

Assumptions

Assumption 1

For the purposes of this study, the behaviors reported from the "most recent non-student status" job will be effective for either a senior company grade officer (senior captain) or a junior field grade officer (major).

Assumption 2

Field grade officers have a distinct and specific role in the organizational hierarchy, which is different from that of company grade officers or flag rank officers.

Assumption 3

For the purposes of this study, leadership behaviors and leadership skills or simply "skills and behaviors" are assumed to be the same.

Research Questions

Research Question 1

Based on Yukl's taxonomy, what are the critical leadership behaviors as self-reported by Air Force majors in reflection of their most recent non-student status job?

Research Question 2

Based on Yukl's taxonomy, what are the critical leadership behaviors as self-reported by Air Force majors in the "operations" career field in reflection of their most recent non-student status job?

Research Question 3

Based on Yukl's taxonomy what are the critical leadership behaviors as self reported by Air Force majors in the "support" career field in their most recent non-student status job?

Notes

[1] Puryear, Edgar, F., Jr., "Stars in Flight: A Study in Air Force Character and Leadership" (Novato, California: Presidio Press, 1981), 95.

[2] Yukl, Gary A. "Leadership in Organizations" (Englewood Cliffs, NJ: Prentice Hall, 1989), 74.

[3] Ibid., 75.

[4] Jaques, Elliott. "Requisite Organization" (Cason Hall, 1989), 11.

[5] Yukl, Gary A. "Leadership in Organizations" (Englewood Cliffs, NJ: Prentice Hall, 1989), 75.

[6] Ibid., 79.

[7] Ibid., 81.

[8] Ibid., 81.

[9] Ibid., 81-88.

[10] Yukl, G., S. Wall, and R. Lepsinger. "Preliminary Report on Validation of The Managerial Practices Survey." In *Measures of Leadership.* Edited by K.E. Clark and M.B. Clark. (West Orange, NJ: Leadership Library of America, 1990), 224.

[11] Ibid., 227.

[12] Ibid., 223.

[13] Mintzberg, Henry. *The Structuring of Organizations* (Englewood, NJ: Prentice Hall, 1979), 106-107.

[14] Katz, R.L., "Skills of an Effective Administrator," Harvard Business Review, Jan-Feb 1955: 34-36.

[15] Ibid., 36-38.

[16] Mann, F. C. "Toward the Understanding of the Leadership Role in Formal Organization." In Leadership and Productivity. Edited by R. Dubin et al. (San Francisco: Chandler, 1965), 82-90.

[17] Jacobs, T.O. and Elliott Jaques, *Leadership in Complex Systems* (In "Human Productivity Enhancement, Edited by Joseph Zeidner, New York: Praeger, 1987), 13.

Notes

[18] Jacobs, T.O. and Elliott Jaques, "Military Executive Leadership." In *Measures of Leadership.* Edited by K.E. Clark and M.B. Clark (West Orange, NJ: Leadership Library of America, 1990), 281-284. Here the authors are primarily discussing The General Theory of Bureaucracy and modifications to it, which became known as the Stratified Systems Theory.

[19] Department of the Army Pamphlet (DAP) 600-80, "Executive Leadership" (HQ, Department of the Army: Draft dated 19 June 1987),4.

[20] Ibid., 15.

[21] Ibid., 14.

[22] Ibid., 17.

[23] Ibid., 5.

[24] Jacobs, T. Owen. "A Guide to the Strategic Leader Development Inventory>" In *Leadership and Ethics.* Edited by Gail Arnott et al. (Maxwell AFB, AL: Air University Press, 1997),

[25] Jennings, Gilbert W. "Leadership Self-Efficacy: Measuring the Effects of Leadership Training and Squadron Officer School." Master's thesis (Air Force Institute of Technology, 1991).

Morabito, Michael A. "Analysis of Air Force Junior Aircraft Maintenance Officer Leadership Development." Master's thesis (Air Force Institute of Technology, 1985).

Hurry, Linda S. "Measuring Behaviors of Air Force Officers as Indicators of Effective Performance and Leadership." Master's thesis. (Air Force Institute of Technology, 1995).

[26] AFPC on-line *Personnel Statistics: Officer Demographics, 1997,* n.p.: on-line, Internet, 19 December 1997, available from http://www.afpc.af.mil.

Chapter 3

Methodology

Critical thinking, is the highest and most human of potentials.[1]

—Stephen D. Brookfield

This section includes the methodology used to conduct the investigation including the demographics of the subject population, explanation of the survey instrument, the methods used in administering the survey, and limitations of the research.

Subjects and Population

The population for this investigation was 302 USAF majors attending Air Command and Staff College (ACSC) class of Academic Year (AY) 1998 at Maxwell AFB, Alabama. The officers participated voluntarily and anonymously. Table 2 lists the specific demographic information for the sample. Significant differences exist between the survey population and the Air Force major's population as a whole. Specifically the survey population was over 90 percent "line of the Air Force" officers versus the Air Force average of only 71 percent. Furthermore, the survey differed from the Air Force in that all categories of line officers were over represented in the survey as they are over represented at ACSC (see Table 2). Indubitably the survey will generalize more appropriately to line officers and should not be considered representative of the "non-line" population. The Air Force selects majors for ACSC and Intermediate Service

School (ISS) on a competitive basis and only approximately the top 25 percent of majors attend in residence.[2] Since the survey was conducted exclusively among in residence ACSC students, the sample can be considered roughly representative of the top tier of Air Force Majors. The results of the study should be applicable to the top tier of majors, and may be instructive to majors as whole even though the results can not be generalized. Additional demographics by specific career field show a comparison between the sample and the USAF majors population as a whole (Appendix D).

Table 2. Demographics (Sample vs. USAF)

	ACSC (n=302) %	USAF* (n=15,652) %
Line	95.4	71
Non-Line	4.6	24
Other	0	5
Operations	47.4	40
Support	48.0	30
Rated Ops	32.8	29
Non-Rated Ops	14.5	11

***Source for AF statistics:** Air Force Personnel Center. *Personnel Statistics: Officer Demographics,* 1997, N.P.; on-line, Internet, 19 December 1997, available from http://www.afpc.af.mil.

Instrument

The survey, located in Appendix E, is a modified off-the-shelf version of Yukl's Managerial Practices Survey (MPS). The survey was in four parts. Part one covered demographic information including rank, gender, number of people supervised, number of years in commissioned service, school attending (since the same instrument was given to Squadron Officer's School and the Air War College) and in the case of all Air Force respondents their Air Force Specialty Code (AFSC). Part II of the survey asked the participants to self report the importance of each of the 11 leadership behaviors of Yukl's

MPS. The instrument used a five-point scale per the MPS with 1="not relevant", and 5="absolutely essential." Part III of the survey asked the respondents to rate their three most important and three least important behaviors that contributed to their success in their most recent non-student status job. The last part of the survey asked them to identify which of the eleven behaviors they felt they needed the most improvement. Three separate times the survey reminded respondents to answer the questions with respect to their *most recent* job prior to attending PME in residence.

The survey has been extensively validated as referenced in chapter two and is a reliable instrument to define and measure leadership behaviors. Internal consistency among the variables on Yukl's MPS ranged between 0.01 and 0.05 over several different studies.[3]

Design and Procedures

The survey was submitted to the ACSC Evaluations Department (ACSC/CVV) and approved by the Commandant via staff summary sheet. A pilot study was then conducted with two ACSC seminars to validate instructions and the process for collecting data. The survey was administered over a one-week period from 9 December 1997 to 16 December 1997. Seminar Leaders were given special instructions for survey administration by the Division Operations Officers (four divisions with eleven seminars in each). Additionally, the Chairman of the Evaluations department sent out an announcement e-mail. The respondents were asked to read the instructions and return the survey within the allotted week. DOD civilians and international officers were excused, and each US DOD major was given the survey (this paper addresses only the Air Force respondents.) The return rate was 73.3%.

Data was manually input into SPSS for processing and analysis. Demographics were analyzed via frequency and descriptive analyses. Importance was reported via means and standard deviations, while relative importance and improvement were analyzed using frequency analysis. Research questions were investigated using descriptive statistics.

Limitations

The study has some inherent limitations. The survey population is admittedly the top tier of Air Force majors and may present some difficulties in generalizing the results to the Air Force majors population as a whole. There is a significant shortage in the percentage of non-line officers in attendance at ACSC as they rarely attend PME (less than five percent compared to almost twenty five percent in the Air Force majors population as a whole.) This survey was the first of many surveys to reach the class (decreasing the likelihood that respondents would have reached "survey burnout" by the time they answered the questionnaire.)

Notes

[1] "Library #1: Business and Leadership," In *The Great American Bathroom Book (GABB) Volume I.* Salt Lake City, UT: Compact Classics, Inc., 1992. Ed. Anderson, Stevens W. Quote by Steven D. Brookfield, p. 1-C6.

[2] Air Force Personnel Center. *Officer Professional Military Education*: *Q & A for ISS and SSS,* 1997, n.p.; on-line, Internet, 11 September 1997, available from http://www.afpc.af.mil/.

[3] Yukl, G., S. Wall, and R. Lepsinger. "Preliminary Report on Validation of the Managerial Practices Survey." In *Measures of Leadership*. Edited by K.E. Clark and M.B. Clark. (West Orange, NJ: Leadership Library of America, 1990), 229-232.

Chapter 4

Results

Logical, analytical thinking is hard thinking. Soft thinking, on the other hand, is divergent, fantastical, visual and often poetic.[1]

—Roger Von Oech

The results of this study are presented in three sections. The first section shows the self-reported importance of the 11 behaviors and their relative importance in terms of the three most important and three least important behaviors for effective leadership. The behaviors junior field grade officers felt they needed the most improvement are presented in the second section. Finally, the third section compares the responses across the major division of career tracks--operations versus support.

Absolute Rank and Relative Rank of MPS Behaviors

The participants rated each of Yukl's 11 behaviors on a scale of one through five (absolute rank). Next they chose the three most important behaviors for effective leadership in their most recent job (1 for most important, 2 for second most important and 3 for third most important). Thirdly they selected the three behaviors that were least important to effective leadership in their most recent job. The results between absolute ranking and relative ranking were closely correlated in that the top three behaviors and bottom three behaviors were the same in each ranking. However the sequence did not

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exactly correlate, e.g. Informing, and Planning and Organizing ranked absolutely 1 and 2, but on the relative rankings Problem Solving edged out Planning and Organizing for the number two spot. The results of the rankings can be observed in Table 3.

Planning and Organizing was in the top three on both accounts. However, it was only second on the absolute ranking and third on the relative ranking. A consensus emerged that Informing was the most important leadership behavior for Air Force Majors. The leaders responsibility to inform will never disappear, and its high ranking could be accounted for by the fact that junior majors are often at a stage in their careers where they gain greater responsibility for ensuring the information flows unhampered.

Table 3. Rank Order of Yukl's Behaviors

Combined Rank Order of Behaviors	Rank Order, According to:			
	Descriptive (absolute)	Most M1s (relative)	Least L1s (relative)	Results (Sum)
1. Informing	1	2	2t	5
2. Planning & Organizing	3	1	1	5
3. Problem Solving	2	5	2t	9
4. Clarifying Roles/Obj	5	3	4t	12
5. Recognizing & Rewarding	4	8	4t	16
6. Consulting & Delegating	6	7	4t	17
7. Motivating	7	4	7	18
8. Managing Conflict	8	6	8	22
9. Monitoring Ops/Env	10	9	9	28
10. Supporting & Mentoring	9	10t	10	29
11. Networking	11	10t	11	32

t = tied for number of rankings n = 302.

Like the three most important behaviors swapping spots for two out of the top three (depending on the method of ranking), a similar event occurred with respect to the three

least important behaviors for both the relative and the absolute rankings. Monitoring Operations and Environment, Supporting and Mentoring, and Networking ranked in the bottom three on both questions, but the order was reversed for the second and third least important spots. Monitoring Operations and Environment was considered to be of little importance to Air Force majors. This is probably due to the fact that this level of leadership in the Air Force spends little time analyzing the external environment to "detect threats and opportunities."[2] It could also be that the participants considered this a leadership responsibility for higher level leaders. There was however a strong consensus among the two comparisons that the top three behaviors were very important to Air Force Majors.

Importance of Yukl's Leadership Behaviors

Participants were asked to rate the importance of each of Yukl's 11 leadership behaviors in relation to their most recent Air Force job. A five-point scale was used, where "1" was "not relevant" and "5" was "absolutely essential." Table 4 shows descriptive statistics for how majors rated the importance and relevance of these behaviors for effective leadership. Overall, participants reported Informing ($M = 4.4$), Problem Solving ($M = 4.2$) and Planning and Organizing ($M = 4.2$) as the most important behaviors. Least important behaviors were Networking ($M = 3.4$) and Monitoring Operations and Environment ($M = 3.6$) and Supporting and Mentoring ($M = 3.7$).

Table 4. Self-Reported Importance

Behavior	Mean	STD DEV
Informing	4.36	.71
Problem Solving	4.19	.77
Planning and Organizing	4.16	.80
Recognizing and Rewarding	4.11	.96
Clarifying Roles and Objectives	4.04	.93
Consulting and Delegating	4.04	.80
Motivating	4.02	.95
Managing Conflict and Team Building	3.85	.94
Supporting and Mentoring	3.73	1.02
Monitoring Operations and Environment	3.63	.94
Networking	3.37	1.03

.n = 302

Participants also chose the three most important (M1) and the three least important (L1) behaviors from the MPS. Table 5 shows the frequency statistics for this section of the survey, with Σ representing the mean of the three previous frequencies. The most important behavior was Planning and Organizing (Σ = 19.0), followed by Informing (Σ = 14.8), and then Problem Solving (Σ = 12.3). The least important behaviors were Networking (Σ = 24.0), followed by Supporting and Mentoring (Σ = 16.2), and Monitoring Operations and Environment with Σ = 11.1

Table 5. Relative Importance

Behavior (Percentages)	M1%	M2%	M3%	Σ_M%	L1%	L2%	L3%	Σ_L%
Informing	15.9	14.6	13.9	14.8	3.0	2.0	7.9	4.3
Consulting and Delegating	3.6	7.6	10.3	7.1	4.0	7.0	7.9	6.3
Planning and Organizing	26.8	16.9	13.2	19.0	2.0	4.6	4.0	3.5
Problem Solving	11.3	12.9	12.6	12.3	3.0	5.0	4.0	4.0
Clarifying Roles/Objectives	14.2	13.6	7.9	11.9	4.0	9.6	7.6	7.1
Monitoring Ops and Environment	2.6	7.9	6.6	5.7	7.0	11.6	14.6	11.1
Motivating	12.9	7.6	9.9	10.1	6.0	4.6	10.9	7.2
Recognizing and Rewarding	3.0	7.9	10.3	7.1	4.0	5.3	7.0	5.4
Supporting and Mentoring	2.3	3.6	5.6	3.8	11.6	24.8	12.3	16.2
Manage Conflict/Team Building	5.0	5.3	6.6	5.6	6.3	13.2	13.6	11.0
Networking	2.3	2.0	3.0	2.4	49.3	12.3	10.3	24.0

.n = 302

Behavior Needing Most Improvement

The participants were asked to choose the *one* behavior in which they felt they needed the most improvement and the results are depicted in Table 6. The results clearly show three behaviors that majors felt they needed help: Planning and Organizing (14.9%), Motivating (11.3%), and Supporting and Mentoring (10.6%).

Table 6. Needs Improvement

BEHAVIOR	%
Informing	6.0
Consulting and Delegating	8.9
Planning and Organizing	14.9
Problem Solving	4.0
Clarifying Roles and Objectives	5.0
Monitoring Operations and Environment	5.6
Motivating	11.3
Recognizing and Rewarding	7.6
Supporting and Mentoring	10.6
Managing Conflict and Team Building	9.9
Networking	16.2

.n = 302

Comparison of Major Career Tracks

The final table shows the results from a one-way comparison of means between two major career tracks. The response differences were tested using a 2-tail significance test. Significant differences ($p < 0.05$) appeared between operations and support personnel in 2 of the 11 behaviors: Managing Conflict and Team Building, and Networking. The operations career track consists of pilots, navigators, space and missile operations, command and control, intelligence, weather and operations support (AFSCs 11XX, 12XX, 13XX, 14XX, 15XX, and 16XX). Support personnel consist of all other AFSCs *except* medical (4XXX) and professional (51XX and 52XX). Additional significance results are in Appendix D.

Table 7. Significance Tests (2-Tail): Operations versus Support

Behavior	Operations versus Support				
	Operations (n=143)		Support (n=145)		p
	Mean	Std Dev	Mean	Std Dev	
Informing	4.32	0.74	4.38	0.68	
Consulting and Delegating	3.97	0.83	4.10	0.76	
Planning and Organizing	4.18	0.81	4.13	0.80	
Problem Solving	4.11	0.80	4.23	0.75	
Clarifying Roles and Objectives	3.95	0.98	4.13	0.89	
Monitoring/Ops and Environment	3.59	0.90	3.68	0.99	
Motivating	3.97	0.91	4.03	1.01	
Recognizing and Rewarding	4.09	0.89	4.12	1.05	
Supporting and Mentoring	3.60	1.11	3.81	0.92	
Managing Conflict/ Team Building	3.64	0.96	4.0	0.90	∗
Network	3.20	1.10	3.50	0.94	∗

∗ = $p < .05$, Significance Test (2-Tail)

Notes

[1] "Library #1: Business and Leadership," In *The Great American Bathroom Book (GABB) Volume I.* Salt Lake City, UT: Compact Classics, Inc., 1992. Ed. Anderson, Stevens W. Quote by Roger Von Oech, p. 1-C4.

[2] See Yukl's Taxonomy, Appendix A

Chapter 5

Conclusions

Anyone who stops learning is old, whether at 20 or 80. Anyone who keeps learning stays young. The greatest thing in life is to keep your mind young.[1]

—Henry Ford

This section includes a recap of the purpose of the research, the research questions, theoretical explanations of the results for each question, whether or not the theory was supported were supported, and trends that appear from those results.

Purpose

The purpose of the research is to determine the self-reported critical leadership behaviors of USAF majors in attendance at ACSC in order to develop a notional model of what leadership behaviors should be emphasized at the junior field grade level of leadership.

Research Questions

Research Question 1: Based on Yukl's taxonomy, what are the critical leadership behaviors as self-reported by Air Force majors in reflection of their most recent non-student status job?

Research Question 2: Based on Yukl's taxonomy, what are the critical leadership behaviors as self-reported by Air Force majors in the "operations" career field in reflection of their most recent non-student status job?

Research Question 3: Based on Yukl's taxonomy what are the critical leadership behaviors as self reported by Air Force majors in the "support" career field in their most recent non-student status job?

Research Question 1

Based on Yukl's taxonomy, what are the critical leadership behaviors as self-reported by Air Force majors in reflection of their most recent non-student status job?

The most important behaviors were Informing (M = 4.4), Planning and Organizing (M = 4.2), Problem Solving (M = 4.2), and Recognizing and Rewarding (M = 4.1). Informing was the most important behavior for all majors at ACSC. It was similarly the most important behavior mentioned by both sub-groups (operations and support). Informing is in Yukl's umbrella category of Giving and Seeking Information. The second and third most important behaviors were in the umbrella category of Making Decisions, and the fourth most important was under the umbrella category of Influencing People. These behaviors and umbrella categories are depicted in Figure 3.

Implications

The variations reported in the importance of the behaviors on the survey indicate support for Yukl's integrating taxonomy. Specifically, Yukl's scales were sensitive enough to distinguish the varying importance of these behaviors. However, Yukl's umbrella categories do not directly relate to the "skills" reflected on the DAP 600-80 model and no conclusions can be drawn as to "where" Air Force majors should be placed on the model. The results can not be used to determine whether majors are at the Direct or the Organizational level of leadership.

Although the results do not indicate "where" to place majors, they do however speak to the problem of "what" a major is and does. They indicate that four of the behaviors

are very important to majors in the Air Force and should be a primary emphasis for what skills junior field grade officers should develop for more effective leadership (Figure 3). The results of this study are a tentative first step towards developing a notional empirical model for the junior field grade rank in the Air Force. But to answer the question of "where" on the DAP 600-80 model requires further replicating studies with additional reference points such as among company grade officers and Lieutenant Colonels.

$M = 4.2$

$M = 4.2$

$M = 4.4$

Most Needed Improvement

$M = 4.2$

Giving-Seeking Information
Monitoring
Clarifying
Informing
Planning
Making Decisions
Problem Solving
Consulting & Delegating
Networking
Team Building & Conflict Mgmnt
Mentoring & Supporting
Recognizing & Rewarding
Motivating & Inspiring
Building Relationships
Influencing People
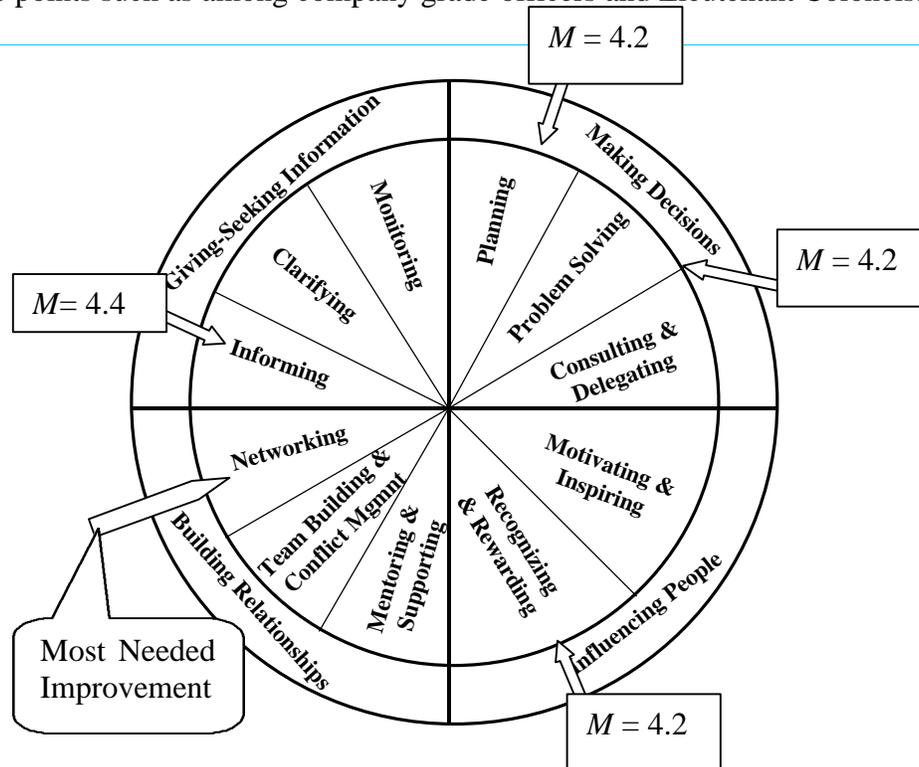
Figure 3. Most Important Behaviors ACSC 0-4s

A significant trend existed with respect to the behavior most needing improvement. Networking was the least important behavior ($M = 3.4$), but was also the behavior reported as most needing improvement. The nature of ACSC in residence could account for Networking's seemingly dichotomous ranking. The official in-class work day is usually about four hours long which theoretically leaves a great deal of time for "socializing informally, developing contacts with people who are a source of information and support."[2] Additionally, ACSC informally emphasizes the importance of networking

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as seminars routinely hold get-togethers outside of class hours. Halfway through the school year, students are assigned new seminars and the socializing process begins anew. Lastly, ACSC is often an officer's first opportunity for long-term exposure to officers from outside his AFSC, making it likely that one would first see the benefits of networking while at the school. The Air Force can use these preliminary results to develop a notional model of what a major is and does with respect to leadership in the organization. Figure 3 shows the most important behaviors and the behavior most needing improvement for Air Fore O-4s at ACSC.

Research Questions 2 & 3

RQ2: Based on Yukl's taxonomy, what are the critical leadership behaviors as self-reported by Air Force majors in the "operations" career field in reflection of their most recent non-student status job?

RQ3: Based on Yukl's taxonomy, what are the critical leadership behaviors as self-reported by Air Force Majors in the "support" career field in their most recent non-student status job?

Operations

The four most important behaviors for operators were the same as those for the group as a whole with the following means: Informing (M = 4.3), Planning and Organizing (M = 4.2), Problem Solving (M = 4.1), and Recognizing and Rewarding (M = 4.1). However, the operators rated many of the behaviors lower than support officers.

Lower rankings were assigned to Managing Conflict and Team Building (M = 3.6 versus 4.0), Supporting and Mentoring (M = 3.6 versus 3.8), both from the umbrella category of Building Relationships. Operators also rated a third behavior category much

lower than support officers, specifically Networking (M = 3.2 versus 3.5) from the umbrella category of Influencing People. Additionally, the operators ranked all behaviors lower than the group with the exception of Planning and Organizing which was only slightly above average (M = 4.18 versus 4.16). The survey instrument may not be sensitive enough to reflect the importance of these behaviors to operators, specifically with respect to technical skills. Since the top four behaviors for operators matched the group as a whole, no additional table is included (See Figure 3).

Support

The most important behaviors for "support" personnel were Informing (M = 4.4), Problem Solving (M = 4.2), Planning and Organizing (M = 4.1), Clarifying Roles and Objectives (M = 4.1), Recognizing and Rewarding (M = 4.1) and Consulting and Delegating (M = 4.1). Networking needed the most improvement. Figure 4 depicts the most important behaviors for "support" officers.
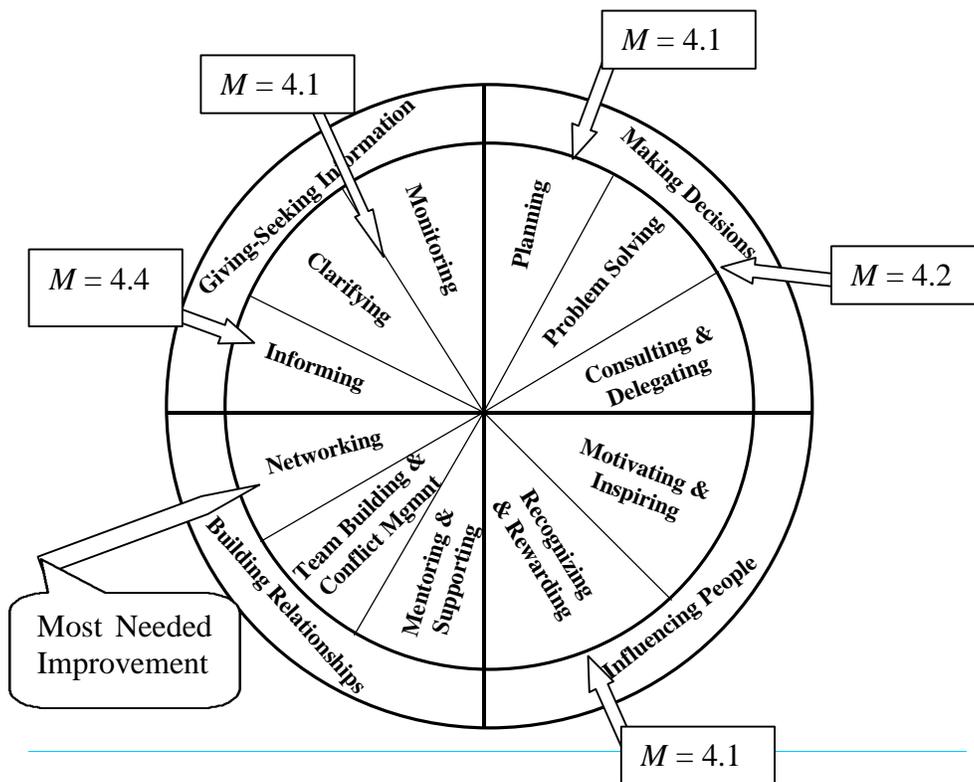
Figure 4. Most Important Behaviors (Support)

Yukl's scales seemed to be sensitive enough to distinguish the varying importance of these behaviors, even though four behaviors were grouped around $M = 4.1$. However, more behaviors were considered "very important" ($M > 4.1$) on Yukl's scale by support officers than by operators. These higher overall rankings may indicate the greater importance "support" officers place on the scales' leadership behaviors compared to operators.

Implications for Operations versus Support

As in the case of O-4s as a whole, no conclusions can be drawn to place Air Force O-4 operators or support officers at any given level of the DAP 600-80 model. However, if operators emphasize technical skills more than their support counterparts, it could tend to indicate that operators are leading more at the Direct level than support officers.[3] Contrarily, it may indicate that the survey instrument was not sensitive enough for

operators with respect to technical skills. The operators' decreased importance of Influencing People and Building Relationships may be due to a requirement for operators to devote more time and energy developing and maintaining technical skills, and less time developing interpersonal skills than their support counterparts. The leadership tasks may be different enough to account for the variance in importance rankings.

Support officers' leadership tasks may be more geared to interpersonal behaviors than are operators. Specifically they may spend more time in the behaviors of Yukl's umbrella categories of Influencing People and Building Relationships because it may be more critical to the nature of their jobs. The increased emphasis on "interpersonal skills" for support officers compared to operators is the most significant implication of this research to the Air Force. The increased emphasis may have been often suspected, but this is a significant step toward empirical validation of the concept. This information should be relevant to the Air Force for teaching leadership to support officers.

The top four behaviors were the same for all groups of the sample, indicating that these behaviors should be a primary emphasis for mentoring leadership at the O-4 level. Based on trends and natural breakpoints in the data, the following table is offered as an initial construct for critical leadership skills at the Air Force O-4 level (Table 8).

Table 8. Critical Leadership Behaviors for Air Force O-4s

BEHAVIOR CATEGORIES	0-4	OPERATORS	SUPPORT
INFORMING	X	X	X
CONSULTING			X
PLANNING	X	X	X
PROB SOLV	X	X	X
CLARIFYING			X
MONITORING			
MOTIVATING			
RECOGNIZING	X	X	X
SUPPORTING			
MANAGING			
NETWORKING			

X = Critical Behavior, ($M \geq 4.1$)

Implications of the Research

Implications for Mentoring

Currently mentoring is prescribed by the Air Force, but it requires mentoring only for company grade officers per AFI 36-3401. The instruction is targeted toward commanders and supervisors of Air Force company grade officers. It states that the Air Force Mentoring Program "was established to bring about a cultural change in the way we view professional development for company grade officers."[4] Senior company grade officers can benefit from a mentoring program that specifically targets those behaviors identified as most important for junior field grade officers. The results of this research

could be included in the appendix of AFI 36-3401 to inform commanders and supervisors what behaviors would repay the greatest benefit in mentoring senior captains.

The behaviors could also be included in Air Force leadership texts as the most important behaviors for effective leadership for junior field-grade officers. This study can also be valuable in the mentoring process as more senior officers can emphasize those behaviors that rated highest. Additionally, junior field grade officers can mentor their subordinates in the Direct level on the behaviors needing most improvement. The Air Force does not have a formal mentoring program for junior field grade officers at this time

Recommendations for Future Research

This study should be administered to a wider sample of Air Force majors to verify whether or not it is expandable to the population as a whole or if it only applies to the top tier of Air Force majors. Administering the survey to the next ACSC class could confirm the reliability of the results and lead to institutionalizing those results across the Air Force's leadership curriculums from the Air Force Academy and ROTC programs to SOS, ACSC, and AWC.

Summary

What behaviors to be mentored to develop future Air Force leaders? Organizations are hierarchical in nature and different leadership behaviors will be emphasized at different levels of an organization (Jacob and Jaques). The US Army developed a model of leadership in DAP 600-80 which theorized that there are three levels of leadership in organizations known as Direct, Organizational, and Executive. Yukl (1994) produced an

integrating taxonomy useful across all organizational levels for determining critical leadership behaviors. The purpose of this research was to discern the critical leadership behaviors for Air Force majors and two major subcategories of majors in the operations and support career tracks.

The instrument for conducting the research was a modified off the shelf version of Yukl's taxonomy known as the Managerial Practices Survey (MPS). The MPS assessed eleven scales: Informing; Consulting and Delegating; Planning and Organizing; Problem Solving; Clarifying Roles and Objectives; Monitoring Operations and Environment; Motivating; Recognizing and Rewarding; Supporting and Mentoring; Managing Conflict and Team Building; and Networking.

The most important behaviors for all Air Force O-4s were informing ($M = 4.4$), planning and organizing ($M = 4.2$), problem solving ($M = 4.2$), and recognizing and rewarding ($M = 4.1$). Operators had less emphasis on some "interpersonal skills" than support officers indicating the instrument may not be sensitive enough to account for the technical skills operators prize. Support officers had correspondingly greater emphasis on the umbrella categories of Influencing People and Building Relationships which tends to indicate a greater need for "interpersonal skills" in their leadership tasks. Since operators place such a greater emphasis on technical skills, there may be reason to believe they are leading more at the Direct level (where demand for technical skills is very high) than their support counterparts.

The Air Force can use the information in this study when mentoring leadership skills to officers. The distinctions drawn between operations and support also provide some empirical data that can be used when assessing future leadership potential for officers.

Specifically, operator majors may need more mentoring in Building Relationships and Influencing People as they progress up the leadership ladder since they have not previously emphasized these skills.

Finally, further research is needed to classify the organizational leadership level at which majors operate. Replicating studies with company grade officers and Lieutenant Colonels could help determine whether majors are at the Direct or Organizational level for leadership tasks. Further reliability studies should also be conducted at ACSC before these behaviors become part of the "mentoring" curriculum at Professional Military Education schools.

Notes

[1] Hughes, Richard L., Ginnet, Robert C. and Gordon J. Curphy, *Leadership: Enhancing the Lessons of Experience.* Burr Ridge, IL: Richard D. Irwin, Inc., 1993. Quote of Henry Ford, p.22.

[2] Yukl's Taxonomy, see Appendix A.

[3] USDAP 600-80, Executive Leadership, draft June 1987, p. 14.

[4] Air Force Instruction 36-3401, 1 July 1997, *AIR FORCE MENTORING.* p.1. Available on-line at http://afpubs.hq.af.mil.

Appendix A

Yukl's Taxonomy of Leadership Behaviors

Table 9. Yukl's Taxonomy

Making Decisions	**Planning and Organizing:** Determining long-term objectives/strategies, allocating resources according to priorities, determining how to use personnel/resources to accomplish a task efficiently, and determining how to improve coordination, productivity, and the effectiveness of the organizational unit.
	Problem Solving: Identifying work-related problems, analyzing problems in a timely but systematic manner to identify causes and find solutions, and acting decisively to implement solutions to resolve important problems or crises.
	Consulting: Checking with people before making changes that affect them, encouraging suggestions for improvement, inviting participation in decision making, incorporating ideas/suggestions of others in.
	Delegating: Allowing subordinates to have substantial responsibility and discretion in carrying out work activities, handling problems, and making important decisions.
Influencing	**Motivating and Inspiring:** Using influence techniques that appeal to emotion or logic to generate enthusiasm for the work, commitment to task objectives, and compliance with requests for cooperation, assistance, support, or resources; setting an example of appropriate behavior.
	Recognizing: Providing praise and recognition for effective performance, significant achievements, and special contributions, expressing appreciation for someone's contributions and special efforts.
	Rewarding: Providing or recommending tangible rewards such as a pay increase or promotion for effective performance, significant achievements, and demonstrated competence.
Building Relations	**Networking:** Socializing informally, developing contacts with people who are a source of information and support, and maintaining contacts through periodic interaction, including visits, telephone calls, correspondence, and attendance at meetings and social events.
	Team Building and Conflict Management: Facilitating the constructive resolution of conflict, and encouraging cooperation, teamwork, and identification with the work unit.
	Developing and Mentoring: Providing coaching and helpful career advice, and doing things to facilitate a person's skill acquisition, professional development, and career advancement.
	Supporting: Acting friendly, considerate, being patient, helpful, showing sympathy and support when someone is upset or anxious, listening to complaints and problems, looking out for someone's interests.
Give/Seek Info	**Monitoring:** Gathering information about work activities and external conditions affecting the work, checking on the progress and quality of the work, evaluating the performance of individuals and the organizational unit, analyzing trends, and forecasting external events.
	Clarifying Roles and Objectives: Assigning tasks, providing direction in how to do the work, and communicating a clear understanding of job responsibilities, task objectives, deadlines.
	Informing: Disseminating relevant information about decisions, plans, activities to people that need it to do work, providing written materials and documents, answering requests for technical information.

Source: Yukl, Gary A. *Leadership in Organizations* (Englewood Cliffs, NJ: Prentice Hall, 1994), 65

Appendix B

Stratified Systems Theory

Table 10. Stratified Systems Theory Functional Domains

Stratum	Time Span	Functional Domain
VII (Corporation)	20 years	Systems Domain —Operates in a nearly unbounded world environment, identifies feasible futures, develops consensus of specific futures to create, and builds required resource bases to create whole systems that can function in the environment. Creates a corporate culture and value system compatible with social values and culture to serve as a basis for organizational policies and climate.
VI (Group)	10 years	
V (Company)	5 years	**Organizational Domain** —Individuals at stratum V operate bounded open systems thus created, assisted by individuals at stratum IV in managing adaptation of those systems within the environment by modification/maintenance/fine tuning of internal processes and climate and by oversight of subsystems.
IV (Division)	2 years	
III (Department)	1 year	**Production Domain** —Runs face-to-face (mutual recognition or mutual knowledge) sub-systems units, or groups engaged in specific differentiated functions but interdependent with other units or groups, limited by context and boundaries set within the larger system.
II (Section; I (Shop Floor)	3 months	

Source: Jacobs and Jacques, *Leadership in Complex Systems*, *Human Productivity Enhancement*, Praeger Publishers, 1987, p. 16

Appendix C

Strategic Leader Development Inventory

Table 11. Strategic Leader Development Inventory.

CONCEPTUAL SKILLS AND ABILITIES	POSTIVE ATTRIBUTES	NEGATIVE ATTRIBUTES
Professional Competence	Interpersonal Competence	Technical Incompetence
Conceptual Flexibility	Empowering Subordinates	Self-serving/Unethical
Future Vision	TEAM PERFORMANCE FACILITATION	Micromanager
Conceptual Competence	Objectivity	Arrogant
Political Sensitivity	Initiative/Commitment	Explosive/Abusive
		Inaccessible

Source: Jacobs, T. Owen. "A Guide to the Strategic Leader Development Inventory." In *Leadership and Ethics.* Edited by Gail Arnott et al. (Maxwell AFB, AL: Air University Press, 1997), 88.

Appendix D

Additional Demographics Tables

Table 12. AFSC (Career Field) Demographics

CATEGORY			AFSC (Career Field)	ACSC (n = 302)	USAF (n = 15,652)
Line	Operations	Rated Ops	11XX 12XX	26.2 6.6	19 10
		Non-Rated Ops	13XX 14XX 15XX 16XX	8.9 3.3 1.7 0.6	5 3 1 2
	Support	Logistics	21XX	10.3	5
		Support Functions	31XX 32XX 33XX 34XX 35XX 36XX 38XX	1.3 5.3 7.9 1.7 0.7 3.9 0.3	<1 2 6 <1 <1 2 <1
		Acquisition	61XX 62XX 63XX 64XX 65XX	0.3 4.3 6.9 2.3 1.7	1 4 4 1 1
		OSI	71XX	1.0	1
Non-Line	Med/Prof	Medical	4XXX	3.0	20
		Professional	51XX 52XX	0.7 1.0	2 1
Special Duty AFSCs			8XXX/9XXX	0.0	4.4

Source: for AF statistics: Air Force Personnel Center. *Personnel Statistics: Officer Demographics, 1997,* n.p.: on-line, Internet, 19 December 1997, available from http://www.afpc.af.mil.

Appendix E (D-Continued)

Additional Demographics Tables

Table 13. Significance Tests (2-Tail): Operations versus Support

Behavior	Operations versus Support				
	Operations (n=143)		Support (n=145)		p
	Mean	Std Dev	Mean	Std Dev	
Informing	4.32	0.74	4.38	0.68	0.44
Consulting and Delegating	3.97	0.83	4.10	0.76	0.16
Planning and Organizing	4.18	0.81	4.13	0.80	0.59
Problem Solving	4.11	0.80	4.23	0.75	0.09
Clarifying Roles and Objectives	3.95	0.98	4.13	0.89	0.10
Monitoring/Ops and Environment	3.59	0.90	3.68	0.99	0.43
Motivating	3.97	0.91	4.03	1.01	0.58
Recognizing and Rewarding	4.09	0.89	4.12	1.05	0.82
Supporting and Mentoring	3.60	1.11	3.81	0.92	0.09
Managing Conflict/ Team Building	3.64	0.96	4.0	0.90	0.001
Network	3.20	1.10	3.50	0.94	0.02

* = *p* < .05, Significance Test (2-Tail)

Appendix F

Survey Instrument

INFORMED CONSENT
Major John D. Garvin, ACSC/DEA, 3-6947

Purpose: This project is investigating how effective leadership skills may vary according to rank, career field, and branch of service. The leadership skills being investigated are those defined by Yukl's taxonomy (1990): informing, consulting and delegating, planning and organizing, problem solving, clarifying roles and objectives, monitoring operations and environment, motivating, recognizing and rewarding, supporting and mentoring, managing conflict and team building, and networking.

Status of Participants: The sample will consist of approximately 1,200 US military officers who are PME students at Air University. The company grade officers will be USAF students at Squadron Officer School (about 600). The field grade officers will be USAF, USN, USMC, and USA students (about 500) at Air Command and Staff College, and the USAF, USN, USMC, and USA students at Air War College (about 100).

Use of Data: All data will be kept confidential and are protected by the Privacy Act of 1974. All results will be reported as group summaries. No participant's name will appear in any reports, papers, or publications resulting from the study.

Risks to Participants: There are no risks associated with participation in this study. No known data or results will be submitted for inclusion in your personnel files.

Feedback to Participants: Copies of the final report will be available from ACSC/DER.

How to Participate: The entire survey requires about 5-10 minutes to complete. Your seminar leader or flight commander will provide instructions on distribution and collection of the surveys. Detach this sheet after completing, return to your flight commander/seminar leader.

Although this will take some of your valuable time, you will be helping to improve the leadership of those who will follow you. Therefore, your thoroughness and honesty are essential to obtaining valid results and is greatly appreciated.

Consent of Participant: Please read and initial each statement.

_____ I have read this page and agree to participate.

_____ I consent to the use of this information for the study.

_____ I understand that I can receive the results through the report of this study, obtainable through ACSC/DER.

Participant's Printed Name   Participant's Signature   Date

**AFTER SIGNING, DETACH THIS PAGE, GIVE IT TO YOUR SEMINAR LEADER OR
FLIGHT COMMANDER, AND CONTINUE THE SURVEY**

LEADERSHIP BEHAVIORS SURVEY

PART I. DEMOGRAPHIC INFORMATION

In Part I, please circle the appropriate answer to each demographic category. If a particular demographic does not apply, please skip to the next question.

1. **Rank:** O-3 O-4 O-5 O-6

2. **Total Years Selected BPZ (All Grades):** N/A 1 2 3 4 5

3. **Service:** Army Navy Air Force Marines

4. **Component:** AD Reserve Guard

5. **School:** SOS ACSC AWC

6. **Total Years of *Commissioned* Service:**

   < 4.0 4.0 to 7.0 7.1 to 11.0 11.1 to 15.0 >15.0

7. **AFSC/Career Field (Air Force Only):**

11XX (Pilot)	32XX (CE)	52XX (Chaplain)
12XX (Nav/EW)	33XX (Comm/Comp)	61XX (Sci/Research)
13XX (Space/C2/Missile)	34XX (Services)	62XX (Dev Eng)
14XX (Intel)	35XX (PA)	63XX (Acquisition)
15XX (Weather)	36/37XX (Personnel)	64XX (Contract)
16XX (Ops Support)	38XX (Manpower)	65XX (Finance)
21XX (Logistics)	4XXX (Medical)	71XX (OSI)
31XX (SP)	51XX (Law)	

8. **Gender:** Male Female

9. **Number of People Supervised (Directly and Indirectly) in *Most Recent Job*?**

   0 1-5 6-10 11-20 21-50 51-100 101+

47

PART II. SIGNIFICANCE RATING

Effective leadership requires many different types of behavior. Eleven categories of behavior required for effective leadership are listed below. Please use the **scale at right to RATE the importance** of each leadership behavior category according to its overall importance or relevance for effective performance in your **most recent job before becoming a student** at Maxwell AFB.

 1 = Not Relevant
2 = Slightly Important
3 = Moderately Important
4 = Very Important
5 = Absolutely Essential

_____ **Informing**: Disseminating relevant information about decisions, plans, and activities to people that need it to do their work; answering requests for technical information and telling people about the organizational unit to promote its reputation.

_____ **Consulting and Delegating**: Checking with people before making changes that affect them, encouraging suggestions for improvement, inviting participation in decision making, incorporating the ideas and suggestions of others in decisions, and allowing others to have substantial responsibility and discretion in carrying out work activities and making decisions.

_____ **Planning and Organizing**: Determining long-term objectives and strategies for adapting to environmental change, determining how to use personnel and allocate resources to accomplish objectives, determining how to improve the efficiency of operations, and determining how to achieve coordination with other parts of the organization.

_____ **Problem Solving**: Identifying work-related problems, analyzing problems in a timely but systematic manner to identify causes and find solutions, and acting decisively to implement solutions and resolve important problems or crises.

_____ **Clarifying Roles and Objectives**: Assigning tasks, providing direction in how to do the work, and communicating a clear understanding of job responsibilities, task objectives, deadlines, and performance expectations.

_____ **Monitoring Operations and Environment**: Gathering information about work activities, checking on the progress and quality of the work, evaluating the performance of individuals and the organizational unit, and scanning the environment to detect threats and opportunities.

_____ **Motivating**: Using influence techniques that appeal to emotion, values, or logic to generate enthusiasm for the work; commitment to task objectives; and compliance with requests for cooperation, assistance, support or resources; also setting an example of proper behavior.

_____ **Recognizing and Rewarding**: Providing praise, recognition, and rewards for effective performance, significant achievements, and special contributions.

_____ **Supporting and Mentoring**: Acting friendly and considerate, being patient and helpful, showing sympathy and support, and doing things to facilitate someone's skill development and career enhancement.

_____ **Managing Conflict and Team Building**: Encouraging and facilitating the constructive resolution of conflict, and encouraging cooperation, teamwork, and identification within the organizational unit.

_____ **Networking**: Socializing informally; developing contacts with people who are a source of information and support; maintaining contacts through periodic interaction, including telephone calls, correspondence, and attendance at meetings and social events.**PART III. RANK ORDER**

Based upon **your most recent job before becoming a student** at Maxwell AFB, rank order the **three MOST important/relevant** behaviors to being a successful leader in that job. Assign a "1" to the most important, a "2" to the second most important, and a "3" to the third most important.

_____ **Informing**

_____ **Consulting and Delegating**

_____ **Planning and Organizing**

_____ **Problem Solving**

_____ **Clarifying Roles and Objectives**

_____ Monitoring Operations and Environment

_____ Motivating

_____ Recognizing and Rewarding

_____ Supporting and Mentoring

_____ Managing Conflict and Team Building

_____ Networking

Based upon **your most recent job before becoming a student** at Maxwell AFB, rank order the **three LEAST important/relevant** behaviors to being a successful leader in that job. Assign a "1" to the least important, a "2" to the second least important, and a "3" to the third least important.

_____ Informing

_____ Consulting and Delegating

_____ Planning and Organizing

_____ Problem Solving

_____ Clarifying Roles and Objectives

_____ Monitoring Operations and Environment

_____ Motivating

_____ Recognizing and Rewarding

_____ Supporting and Mentoring

_____ Managing Conflict and Team Building

_____ Networking

Based upon **your most recent job before becoming a student** at Maxwell AFB, check **(X)** the one behavior in which you feel you need the most improvement.

_____ Informing

_____ Consulting and Delegating

_____ Planning and Organizing

_____ Problem Solving

_____ Clarifying Roles and Objectives

_____ Monitoring Operations and Environment

_____ Motivating

_____ Recognizing and Rewarding

_____ **Supporting and Mentoring**

_____ **Managing Conflict and Team Building**

_____ **Networking**

| **All responses should be based upon** *your most recent job* |

Please return your completed survey to your seminar leader or flight commander.

Thank you for your time and cooperation!

Glossary

ACSC	Air Command and Staff College
AFIT	Air Force Institute of Technology
AU	Air University
AWC	Air War College
DOD	Department of Defense
USAF	United States Air Force

Bibliography

Bass, Bernard M. *Bass & Stogdill's Handbook of Leadership: Theory, Research and Managerial Applications.* 3rd ed. New York: The Free Press, 1990

Bennis, W.G. "Leadership Theory and Administrative Behavior: The Problem of Authority." *Administrative Science Quarterly,* vol. 4, (1959)

Bennis, Warren. *On Becoming a Leader.* Reading, MA: Addison-Wesley, 1989.

Chilicoat, Richard A. "The 'Fourth' Army War College: Preparing Strategic Leaders for the Next Century." *Parameters*, Winter, 1995-1996.

U.S. Department of the Army (DA) Pamphlet 600-80. *Executive Leadership,* 1986.

Gardner, John W. *On Leadership.* New York, NY: The Free Press, 1990.

Anderson, Steven W., ed. "Library #1: Business and Leadership," *The Great American Bathroom Book (GABB), Volume I.* Salt Lake City, UT: Compact Classics, Inc., 1992.

Harris, P., and K.W. Lucas *Executive Leadership: Requisite Skills and Developmental Processes for Three- and Four-Star Assignments.* Research report. Alexandria, VA: Army Research Institute, 1994.

Hughes, Richard L., Robert C. Ginnett, and Gordon J. Curphy. *Leadership: Enhancing the Lessons of Experience.* Burr Ridge, IL: USA, 1993.

Hurry, Linda S. "Measuring Behaviors of Air Force Officers as Indicators of Effective Performance and Leadership." Master's thesis, Air Force Institute of Technology, 1995.

Jacobs, T.O. *Leadership and Exchange in Formal Organizations.* Alexandria, VA: Human Resources Research Organization, 1970.

Jacobs, T. Owen. "A Guide to the Strategic Leader Development Inventory." In *Leadership and Ethics.* Edited by Gail Arnott et al. Maxwell AFB, AL: Air University Press, 1997, 79-105.

Jacobs, T.O., and E. Jaques. "Leadership in Complex Systems." *Human Productivity Enhancement. Vol.2, Organizations and Personnel.* Edited by J.A. Zeidner. New York: Praeger, 1987.

Jacobs, T.O., and E. Jaques. "Military Executive Leadership." *Measures of Leadership.* Edited by K.E. Clark and M.B. Clark. West Orange, NJ: Leadership Library of America, 1990.

Jaques, Elliott. *Requisite Organization.* USA: Cason Hall, 1989.

Jaques, E., S. Clement, C. Rigby, and T.O. Jacobs. "Senior Leadership Performance Requirements at the Executive Level." Research report. Alexandria, VA: Army Research Institute, 1985.

Jennings, Gilbert W. "Leadership Self-Efficacy: Measuring the Effects of Leadership Training at Squadron Officer School." Master's thesis, Air Force Institute of Technology, 1991.

Junior, Berlain Hatfield. "Strategic Leadership Development: An Operation Domain Application." Research report. Maxwell AFB, AL: Air Command and Staff College, March 1997.

Katz, D., and R.L. Kahn. *The Social Psychology of Organizations*. New York: John Wiley and Sons, 1966.

Mintzberg, Henry. *The Structuring of Organizations.* Englewood, NJ: Prentice Hall, 1979.

Morabito, Michael A. "Analysis of Air Force Junior Aircraft Maintenance Officer Leadership Development." Master's thesis, Air Force Institute of Technology, 1985.

Purvis, Joseph H. Jr. "Strategic Level Leadership: Are There Two Levels of Leadership in The Army or Three?" Research paper. Maxwell AFB, AL: School of Advanced Military Studies, May 1989.

Puryear, Edgar F. Jr. *Stars in Flight: A Study in Air Force Character and Leadership.* Novato, California: Presidio Press, 1981.

Field Manual (FM) 22-103. "Strategic Leadership." Draft, Undated.

Taylor, Ralph. "Redefining Leadership Skills For Instructor Pilots —A Hierarchical Analysis of Flightline Job Roles and Responsibilities." Research project, Embry-Riddle Aeronautical University, 1997.

Van Fleet, D. and G.A. Yukl. *Military Leadership: An Organizational Behavior Perspective.* Greenwhich, CT: JAI Press, 1986.

Van Scotter, James R. "Evidence for the Usefulness of Task Performance, Job Dedication, and Interpersonal Facilitation as Components of Performance." Ph.D. diss., University of Florida, 1994.

Yukl, G., S. Wall, and R. Lepsinger, Edited by K.E. Clark and M.B. Clark. "Preliminary Report on Validation of the Managerial Practices Survey." *Measures of Leadership.* West Orange, NJ: Leadership Library of America, 1990.

Yukl, Gary A. *Leadership in Organizations*. Englewood Cliffs, NJ: Prentice Hall, 1994.

Yukl and Wexley "Patterns of Leadership Behavior Related to Employee Grievances and Turnover." In *Readings in Organizational and Industrial Psychology*, 1971 New York: Oxford University Press, 1971.