REPORT DOCUMENTATION PAGE	Form Approved OMB No. 0704-0188

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE	3. REPORT TYPE AND DATES COVERED
	4 August 1998	

4. TITLE AND SUBTITLE
INVESTIGATION OF A LEADERSHIP DEVELOPMENT PROGRAM

5. FUNDING NUMBERS

6. AUTHOR(S)
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7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
George Washington University

8. PERFORMING ORGANIZATION REPORT NUMBER
98-016D

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)
THE DEPARTMENT OF THE AIR FORCE
AFIT/CIA, BLDG 125
2950 P STREET
WPAFB OH 45433

10. SPONSORING/MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES

12a. DISTRIBUTION AVAILABILITY STATEMENT
Unlimited distribution
In Accordance With AFI 35-205/AFIT Sup 1

12b. DISTRIBUTION CODE

13. ABSTRACT *(Maximum 200 words)*

14. SUBJECT TERMS	15. NUMBER OF PAGES	16. PRICE CODE
	248	

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT

INVESTIGATION OF A LEADERSHIP DEVELOPMENT PROGRAM

ABSTRACT OF DISSERTATION

An Empirical Investigation of a Leadership Program

This study investigated whether individual leadership style and characteristics are affected by leadership training. A quantitative approach was taken, using Sashkin's Visionary Leadership Theory (VLT) to study the effects of a certificated military leadership school, the U. S. Air Force Air Command and Staff College, located at Air University in Montgomery, Alabama. A recurrent institutional cycle research design was used to examine pre-training, post-training, one-year posttraining, and two-year post-training scores for ACSC classes over a three-year period. Effects were measured immediately after the training intervention and one and two years later. Findings of this longitudinal study support VLT: a leadership development curriculum based on transformational leadership can result in significant increases in leadership self-assessment scores after the training intervention. Moreover, the findings suggest that exposure to the transformational leader (as well as to the organizational culture that leader has constructed) has long-term effects that continue long after the training intervention. That is, under those conditions trainees experience continued increases in self-assessed leadership scores, measured one and two years after the intervention. Exposure to the transformational curriculum alone did not produce such a continuing effect on trainee leadership development..

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Biography

Lieutenant Colonel Brad D. Lafferty is currently assigned to Air Command & Staff College, Air University, Maxwell AFB, AL where his area of expertise is leadership, organizational structure, analysis and development.

Lieutenant Colonel Lafferty was born Oct. 19, 1953, in Port Huron, Michigan, and graduated from Fostoria High School, Fostoria, Ohio. He attended Purdue University, Indiana, and Ohio University in Athens, Ohio, where was named a Phi Kappa Phi scholar and granted his Bachelor of General Studies in Communication in 1976. He received his Master of Arts degree in Communication in 1978 from Arizona State University, Tempe, Arizona, where he concurrently served on the faculty designing and implementing courses in organizational communication, leadership management and statistical analysis. He is a 1985 graduate of Squadron Officer School and a 1992 graduate of Air Command and Staff College, both at Maxwell AFB, and a 1992 graduate of Armed Forces Staff College, Norfolk, Virginia. He has completed the Joint Operational Planning System Course and the Worldwide Military Command and Control System Intercomputer Network Course.

Lieutenant Colonel Lafferty entered the Air Force in 1979 after graduating from Officer Training School, Lackland AFB, Texas; he was commissioned on Nov. 29, 1979. Following the Transportation Officer Course at Sheppard AFB, Texas, Lieutenant Colonel Lafferty joined the Headquarters Strategic Air Command Transportation Directorate as Plans and Programs Officer. In May of 1981, Lieutenant Colonel Lafferty was transferred to the Traffic Division, where he validated and controlled Strategic Air Command Special Assignment Airlift Missions.

Following completion of the Logistics Officer Course at Lowry AFB, Colorado, Lieutenant Colonel Lafferty joined the Strategic Air Combat Operations Staff, Directorate of Contingency Logistics, in May of 1982 to serve as Chief, Current Operations Branch. Additionally, he was Southwest Asia central point for Strategic Air Command Contingency Logistics.

From April 1984 to April 1985, Lieutenant Colonel Lafferty served as Resource Plans Officer, 8th Tactical Airlift Wing, Kunsan AB, Republic of Korea. There he was responsible for the deployment and reception of a two-squadron fighter wing and its more than 2300 personnel.

Following his Korea tour and attendance at Squadron Officer School, Lieutenant Colonel Lafferty joined the Headquarters Tactical Air Command staff in August 1985 as Chief, Aircraft Modernization Section, Directorate of Logistics. His responsibilities included the development/implementation of logistics concepts and planning annexes for command weapon systems conversions, as well as development/implementation of logistics support plans for operational test and evaluation of new weapons systems.

Lieutenant Colonel Lafferty became the Chief, Logistics Plans for 3rd Air Division, Andersen AFB, Guam, in July 1987. He transitioned with the unit to Hickam AFB, Hawaii, in August 1988. He served as the architect for Pacific Ocean theater logistical operations while deployed supporting Joint operations throughout the Gulf War. Following the war, he was hand-picked by the Air Force Chief of Staff to attend Armed Forces Staff College, Norfolk, Virginia. He left Hawaii to attend Air Command and Staff College in July of 1991.

In 1991, Lieutenant Colonel Lafferty was selected by a board of general officers to attend the second (1992) class of the School of Advanced Airpower Studies, a Chief of Staff-directed graduate school that educates twenty-five field grade officers in airpower strategy, theory, doctrine and planning. He received his Master of Airpower Art and Science degree in 1993.

He was competitively selected for his next assignment in June of 1993 as the Chief, Future Campaigns Division, and Commanders Advisor, Air Command and Staff College, Air University, Maxwell AFB, Alabama, as the faculty expert on war and conflict, operational structures and future campaigns disciplines, where he developed curriculum, directed/conducted graduate-level research on war campaign topics, and advised senior faculty and staff in the DOD.

In the fall of 1995 was he awarded the Air Force Institute of Technology doctoral fellowship, in the Executive Leadership Program, George Washington University. He received his Doctorate of Education degree in Executive Leadership Management in May 1998. Lieutenant Colonel Lafferty is married to Major Christina L. Lafferty, USAF Reserve.

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EDUCATION

1998	• E.Ed. George Washington University Major: Leadership/Management
1992	• M.S. Air University: Major Strategy/Logistics
1978	• M.A. Arizona State University: Major Communications/Organizational Management
1976	• B.A. Ohio University: Major Communications/ Minor: Organizational Management

PROFESSIONAL EXPERIENCE

AFIT Doctoral Fellow, George Washington University Washington DC 1995-Present	• Air Force Institute of Technology Doctoral Fellow, Executive Leadership Program, George Washington University.
Faculty Curriculum Committee, Fletcher School of Law & Diplomacy, Tufts University. 1994-Present	• Faculty Curriculum Working Committee, Fletcher School of Law & Diplomacy, Tufts University. • "Coercion Theory and Counterproliferation" Fletcher School of Law & Diplomacy, Tufts University, Institute for Foreign Policy Analysis and the Defense Nuclear Agency
Chief, Future Campaign Division Air Command & Staff College Air University Maxwell AFB AL 1994-1995	• Course director for Campaign 2000. Designed Campaign 2000 course to direct Department of Defense and representatives of 50 foreign nations in future trends analysis for campaign planning into the coming millennium.

Research Director:
Air Command & Staff College
Air University
Maxwell AFB AL
1993-1994

- Research Director and Primary Author:
  - "Effects of Media Information on Enemy Capability" garnered top awards from Shippensburg University and was lead article in Proteus, Spring 1995
  - "Intransit Visibility" Study supporting civilization of Department of Defense shipments.
  - "Reorganizing the Air National Guard into State-based Composite Wings" to be briefed to USAF Chief of Staff. Concepts integrated into ANG vision for new directions for 21st century.

- Historian to Lt Gen Gus Pagonis, USA (Ret), logistics architect for Desert Storm, to compile his Gulf War documents into a usable, retrievable and coherent format. Designed an interactive computer education program to teach logistics lessons learned in order to educate future Air Force leaders in effective deployment principles

- Phase Manager for logistics section for Campaign 2000. Developed courses on future trends in logistics, gradualism and coercion theory. Wrote and delivered keynote lecture "Future of Military Gradualism, a Call for Political rather than Military Solutions."

- Created and taught a needs-based course on graduate-level writing that directly improved student performance on written tests and papers.

School of Advanced Airpower Studies
Headquarters, Air University (AETC)
Maxwell AFB AL
1991-1992

- School of Advanced Airpower Studies. Authored: "Air Force Logistics: Moving from a Mobilization Base to One of Mobility."

Faculty Instructor
Department of Communication
Arizona State University
Tempe AZ
1976-1979

- Developed and taught undergraduate level courses in Humanities, Art History, Introduction to Communication, Organizational Theory and Introduction to Statistics. Taught graduate level courses on Communication Theory, Curriculum Development and Basic Research Principles.

- Vice Chairman of National Cross Cultural Communication Conference, Phoenix AZ.

Teaching Associate
Ohio University
Athens OH
1972-1976

- Developed undergraduate writing course incorporating innovative teaching and curriculum theory. Selected to team teach course with Dr. Edward Mitchell, Department of English.

- Designed and taught graduate-level course on creative process theories for Department of Interpersonal Communication.

- Voted University Professor for outstanding teaching by Ohio University students. Award not presented due to non-full-time faculty and undergraduate status.

- Judge: National forensics Championship

- Upon graduation, awarded teaching associateships by University of Buffalo at SUNY, NY; University of Missouri; and Arizona State University. Accepted ASU award.

HONORS

- Outstanding Young Men of America, National Jaycees
- University Professor, Ohio University
- Phi Kappa Phi National Honor Society, Ohio University

PUBLICATIONS

- Visionary Leadership Theory, Pending Publication 1998
- How to Write a Successful Doctoral Proposal, Pending Publication 1998
- Analysis of Feedback of a Human Resource Development Cohort in the Second Stage of Development through Feedback: A Starting Point to Better Group Dynamics and Team Building
  Proceedings: Conference on Human and Organizational Studies, 1996
- Consulting in the Face of a Leadership Crisis: Application of the Lafferty Consulting/Analysis Process Model and the Schwandt Dynamic Organizational Learning Model in the Preliminary Consulting with American Business for Legislative Endeavors
  Proceedings: Conference on Human and Organizational Studies, 1996
- Coercion Theory and Counterproliferation
  Fletcher School of Law & Diplomacy, Tufts University,
  Institute for Foreign Policy Analysis Press, 1995
- Changing The Vision Of Power From Mobilization/Mobility
  Curriculum Text, Air Command & Staff College Press, 1994
- The Early History of Air Force Mobility
  Klaxon: The SAC Society Journal, March 1994
- Campaign 2000 Logistics
  Curriculum Text, Air Command & Staff College Press, 1994
- Reorganizing The Air Guard Into State-Based Composite Wings: A Foundation For Innovation, Efficiency, Combat Capability And Increased Organizational Stability In The Combat Theater
  1994 Air National Guard Vision, Spring 1994
- The Effect of Media Information on Enemy Capability: A Model for Conflict
  Proteus: A Journal of Ideas, Spring 1994

- Intransit Visibility: Supporting Civilization of Department of Defense Shipments by Commercial Carriers.
  Air Mobility Command Research Papers, Fall 1993

PAPERS PRESENTED

- "Future of Military Gradualism, a Call for Political rather than Military Solutions." Presented at Air University, 11 March

- "Consulting in the Face of a Leadership Crisis: Application of the Lafferty Consulting/Analysis Process Model and the Schwandt Dynamic Organizational Learning Model in the Preliminary Consulting with American Business for Legislative Endeavors" Presented at the 2nd Annual Conference on Human and Organizational Studies, The George Washington University, 10-11 November 1996.

- "Analysis of Feedback of a Human Resource Development Cohort in the Second Stage of Development through Feedback: A Starting Point to Better Group Dynamics and Team Building" Presented at the 2nd Annual Conference on Human and Organizational Studies, The George Washington University, 10-11 November 1996.

INVITED LECTURER

- "Leadership, Trust and the American Economic System" International Banking & Information Security Conference, New York, NY, Feb 1997.

- "Decision-making in complex environments." George Washington University Graduate College of Education and Human Development, Doctoral Program in Education, Nov 1996.

PROFESSIONAL AFFILIATIONS

- Phi Kappa Phi National Honor Society Scholar

- Academy of Management
  - Board of Review

- Life Member, Air Force Association

- Senior Life Member, Society of Logistics Engineers

- Member, Strategic Air Command Society

CIVIC ACTION

- Board of Directors, Seatac Foundation, Pacific Region
- Volunteer, Veterans Hospital, Salvation Army, Combined Federal Campaign and Air Force Assistance Fund Drives
- Coach, Special Olympics

RUNNING HEAD: INVESTIGATION OF A LEADERSHIP DEVELOPMENT PROGRAM

An Empirical Investigation of a Leadership Development Program

by

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B.G.S. May 1976, The Ohio University

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A Dissertation submitted to

The Faculty of

The Graduate School of Education and Human Development

of The George Washington University in partial satisfaction

of the requirements for the degree of

Doctor of Education

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INVESTIGATION OF A LEADERSHIP DEVELOPMENT PROGRAM

ABSTRACT OF DISSERTATION

An Empirical Investigation of a Leadership Program

This study investigated whether individual leadership style and characteristics are affected by leadership training. A quantitative approach was taken, using Sashkin's Visionary Leadership Theory (VLT) to study the effects of a certificated military leadership school, the U. S. Air Force Air Command and Staff College, located at Air University in Montgomery, Alabama. A recurrent institutional cycle research design was used to examine pre-training, post-training, one-year posttraining, and two-year post-training scores for ACSC classes over a three-year period. Effects were measured immediately after the training intervention and one and two years later. Findings of this longitudinal study support VLT: a leadership development curriculum based on transformational leadership can result in significant increases in leadership self-assessment scores after the training intervention. Moreover, the findings suggest that exposure to the transformational leader (as well as to the organizational culture that leader has constructed) has long-term effects that continue long after the training intervention. That is, under those conditions trainees experience continued increases in self-assessed leadership scores, measured one and two years after the intervention. Exposure to the transformational curriculum alone did not produce such a continuing effect on trainee leadership development..

DEDICATION

To Chris, my partner in all endeavors.

ACKNOWLEDGMENTS

No person begins, let alone completes, a dissertation by themselves. The words have been formed by so many along the way who do not know they even contributed. My sincere gratitude to my early mentors: Harry Miller, Bill Arnold, Robbie Robertson and Old Doc Mets.

My thanks to the GWU-ELP faculty and administrators for their guidance and tolerance in heading me toward that second loop of learning. Additionally, appreciation goes to the best support staff any researcher could ever ask for, the GWU Northern Virginia Campus Library Staff.

Finally, my most sincere thanks and deepest regard to my chairman, mentor, friend and now colleague, Marshall Sashkin, who took a chance on me.

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CHAPTER 1: INTRODUCTION

Overview

No other organizational endeavor is as dependent upon leadership as the military because its function is to take human life when directed. Though technological advancements from swords to gunpowder to today's high technology weapons have changed the face of war, the determining factor for success has been and will remain leadership. Even though some researchers argue that leadership has little or no effect on organizational performance (Lieberson & O'Connor, 1972; McKelvey, 1982), in practice, many perceive that leadership has a significant impact upon an organization's performance. Indeed, research has demonstrated that the concept of leadership has been "romanticized" to heroic proportions (Meindl, Ehrlich, & Dukerick, 1985). Perhaps linked to this "heroic" dimension, the military continues to make sizable commitments to the area of leadership skills. Specifically, the United States Air Force has built a complete university, Air University (located in Montgomery, AL), to teach the fundamentals of airpower and leadership. Initiated by President Eisenhower, the university's charter is to prepare officers and airmen for their leadership role in applying airpower on a global basis. The purpose of this dissertation is to determine whether leadership training affects individuals' leadership styles and characteristics by examining the effects of one of the leadership development programs carried out at Air University.

This study examines the short and long term effects of Air Command and Staff College's (ACSC) leadership training program. In the short run, are there changes in trainees' leadership style and characteristics? Can these be attributable to their training experience with new approaches to understanding leadership? And if there are changes, are these changes stable over the long run? Answers to these questions may help to determine whether the ACSC leadership training program will allow the airman of tomorrow to deal successfully with the dynamic and highly technical battlefield being implemented.

General Statement of the Problem

We know little about long-term effects of substantive leadership development programs like ACSC. Research has not yet looked at whether these training programs truly do affect the participant as maintained in Sashkin's Visionary Leadership Theory (Sashkin, 1986, 1996a). This study is the first to examine long term leadership changes as a result of participation in a military leadership development program.

Research Question

The question addressed here is: Does a leadership training program affect the participants in such a way as to change individual leadership style associated with transactional and transformational leadership as proposed by Sashkin (1996a)?

Research Design

This study used measures of leadership behaviors and characteristics to assess longitudinally whether the ACSC leadership program resulted in changes in individuals' leadership as determined by The Leadership Profile (TLP) (Rosenbach, Sashkin &

Harburg, 1996; Sashkin, 1994, 1996b) scores. Campbell & Stanley's (1963) recurrent institutional cycle design was used to examine changes in leadership scores for different groups obtained at the same and at different points in time. The Organizational Cultural Assessment Questionnaire (OCAQ) (Sashkin, 1990a, 1990b) was used to provide a test for equivalence required by the institutional cycle design.

Background and History: Air Command and Staff College, Air University

Air Command and Staff College, Air University, located at Maxwell Air Force Base, Alabama, is the institution central to Air Force leadership development. It is a certificated, ten-month leadership school and is part of a four-tiered professional military education program that spans the length of the officer's career.

Air University was chartered to focus on leadership (Spaatz, 1947, 1944) and technology (Marshall, 1945). Leadership theory was taught in the form of principles (Ridgway, 1966) and values (Catton, 1969), chiefly supported by historical anecdotes (Craven & Cate, 1949). Thus, Air University's leadership teaching was motivational and inspirational, supporting teaching of procedures and technological advances (Air University, 1988).

With the end of the cold war, the Air Force was faced with a dynamically changed environment and needed leaders able to deal with this changed world view. Desert Storm demonstrated that though the airpower campaign had changed significantly, leadership, specifically innovative/creative leadership was critical (Gingrich, 1994). While many claimed that technology was decisive (Allen, Berry, & Polmar, 1991), commanders cited leadership especially leadership that could innovate as the key factor

(Atkinson, 1993; McPeak, 1995; Pagonis, 1992, 1994a, 1994b; Reynolds, 1995; Schwarzkopf, 1992; Smith, 1991; Vriesenga, 1994; Woodward, 1991).

In need of a new curriculum at ACSC to train these new creative, innovative and transformal leaders, the senior Air Force leadership selected Colonel John A. Warden, III, architect of the Desert Storm Air Campaign as the commandant of ACSC. Warden was unique for this selection due to his reputation as an innovative, creative and transformational leader (Shaud, 1996). Warden's charter (Warden, 1993) was to restructure ACSC and integrate a transformational curriculum administered in a transformational leadership style. This vision was characterized in the statement, "We need architects, not bricklayers" (Warden, 1993). One of the goals of this transformational approach is to foster the transference of transformational leadership from the leaders (faculty) to the students (followers).

In 1992, under Warden's leadership ACSC was split into two separate programs (Development Phase). New curriculum was developed and compared to the control group in the hope of developing a transformational curriculum (Adjustment Phase). The new curriculum which integrated leadership and specifically transformational leadership characteristics into every lesson as well as a separate leadership 'phase' (Warden, 1993) was implemented school-wide the next year (Implementation Phase). In addition to curriculum changes a technological base was established by distributing notebook computers to all students connected by a computer LAN network, and individual libraries were provided for each student. Comparisons between the old ACSC program (pre-1992) and the new program (post- 1992) are listed in Attachment 8.

Purpose of the Study

The purpose of this study was to determine whether leadership training affects individuals' leadership styles and characteristics. The study used the ACSC Longitudinal Leadership Database, composed of archived data including The Leadership Profile (TLP), the Organizational Culture Assessment Questionnaire (OCAQ), and demographic data. ACSC requires no commitment to return data or for any other action for use of the database. By comparing pre- and post-training data, repeatedly and at increasingly longer times after the training, it is possible to determine whether individuals' leadership behaviors and characteristics (as measured by the TLP) change after attending ACSC's one-year certificated leadership program. The effects of the training were also assessed to see if alpha, beta or gamma change (Golembiewski, Billingsley, & Yeager, 1976; Golembiewski & Billingsley, 1980; Thompson & Hunt, 1996) had occured.

Contribution To Theory

One contribution this dissertation provides to transformational and transactional leadership theory is in determining whether there are changes in transactional and/or transformational leadership based on a structured ten-month leadership development program. Specifically, the study aims to provide support for Sashkin's Visionary Leadership Theory (VLT) by linking VLT to a training intervention. It may thus strengthen Sashkin's argument that the presence and participation of the visionary leader is important, by showing what happens to respondents when the visionary leader is absent but the intervention (i.e., curriculum) is the same. Finally it aims to support the use of Golembiewski, Billingsley, and Yeager's, (1976) alpha, beta, gamma change

evaluation model to examine the effects of a leadership training program. Because the training curriculum had been so carefully developed, documented, and standardized, use of a recurrent institutional cycle design permits judgments as to whether the program resulted in changes in individuals' assessed leadership scores.

Theoretical/Conceptual Framework

The organizing framework for this study is the theory of transformational and transactional leadership, which originated in the late 1970s (Burns, 1978). Some, (e.g., Sashkin, 1996a) equate transactional leadership with management. That is, there is an exchange involved, a *quid pro quo* that provides the follower with something in exchange for performing as the leader directs. The "something" may be material, such as money, or nontangible, as in praise or affiliation. Transformational leadership, on the other hand, denotes revolutionary change that necessitates exploration of fundamental values and beliefs (Koerner & Bunker, 1992). The goal is to develop a shared vision and a unity of purpose among leaders and followers (Farley, 1992), and to develop followers who can themselves take on leadership roles when necessary (Burns, 1978; Sashkin, 1996d).

Transformational leaders create a culture that encourages followers to become confident (having self-efficacy, the ability to seize control of one's own destiny Bandura, 1986, 1982), empowering and cognitively skilled. Empowering individuals direct their need for power in pro-social ways that benefit and empower others and the organization (McClelland, 1987). Finally, transformational leaders develop their own complex

problem-solving skills (Jaques 1986) and support cognitive development in members of the organization (Sashkin, 1996d).

Significance of the Study

This study is significant for the following reasons:

1. Long term assessment of the impact of a leadership training program. We know little about long-term effects of substantive leadership development programs like ACSC. Fiedler's Contingency Theory research in this area (Fiedler, 1957, 1970; Fiedler & Mahar, 1979) extended over decades and did include some military populations in training situations. However, he looked at different groups at single points in time versus one group longitudinally. Studies such as Halpin's (1952) behavioral-based examination of leadership and military aircraft commanders led Korman (1966) to call for longitudinal studies. These were lacking until a recent study (Fok, Hartman, Crow, & Moore, 1995) examined prediction of civilian leader success over ten years using the leadership opinion questionnaire. Rosenbach (1982, 1986) conducted two military longitudinal studies of Air Force pilots, but these focused on job attitudes, not leadership per se. One longitudinal investigation (Yammarino & Bass, 1990; Yammarino, Spangler, & Bass, 1993) tied Multifactor Leadership Questionnaire results to archived Naval officer performance report data to determine predictors of performance. Another (Avolio et. al., 1996) proceeded along similar lines with Virginia Military Academy cadets. Finally, the Army created a longitudinal database in 1994 to archive leadership data at the U. S. Military Academy. The Army plans to use the data for future study of changes in leadership behavior and identification of experiences that contribute to leader

development (Avolio et. al., 1996). The study described here, however, is the first to examine longitudinal leadership development effects within a military leadership development program.

2. Recommendations for future actions. The study may assist in determining what should be taught to developing military leaders as well as in determining if what is being taught is desirable. The study serves to highlight areas for further research, specifically causal relationships concerned with (a) how leadership behaviors impact organizational activities, and (b) how organizational dynamics impact on the emergence of specific leadership behaviors.

3. Contribution to leadership theory. The study provides support for Sashkin's Visionary Leadership Theory by linking it to a training intervention. It strengthens Sashkin's position that the presence and participation of the visionary leader is important by showing what happens to respondents when the visionary leader is absent but the intervention (i.e. curriculum) is the same. Finally it provides support for the use of Golembiewski, et. al., (1976) alpha, beta, gamma change evaluation model in a leadership training program.

Limitations of the Design

This study was subject to the following limitations:

1. Generalizability: This study was designed to use data concerning a specific military educational population. It is questionable whether any of the findings in this study can be applied to non-military populations or other military populations outside the military educational context.

2. The sample population was composed of the top 10% of the of the field grade (major/lieutenant colonel) officer corps destined for command. Findings cannot be applied to the field grade officer level or the officer corps in general.

3. Lack of actual performance data: All data used in this study was self-reporting; consequently no actual performance data is included. While these self-perceptions may be interesting, they cannot definitively show a relationship to any type of behavior let alone performance behavior.

Outline of the Dissertation

Chapter 2 discusses research areas of relevance to the current work and how they impact the present study. Research on leadership traits, behaviors, situational contingencies, transactional and transformational leadership, and leadership training, to include training evaluation, is discussed. Chapter 3 includes the research hypotheses about leadership and training. It also describes the methodology used to test the hypotheses. It includes a description of the sample, measures, and statistical techniques used in the research. Chapter 4 presents analyses of the data and the results of the hypotheses tested. Chapter 5 is a discussion of the results and their implications for leadership and training.

CHAPTER 2: REVIEW OF LITERATURE

Overview

This chapter structures the review of military leadership literature thematically into six relevant areas: (1) trait, (2) behavior, (3) situation (4) transformational and transactional leadership, (5) visionary leadership, and (6) leadership training, to include training evaluation. Though research in the areas of trait, behavior and situation continue to this day this review looks at the relevant areas of leadership research sequentially reflecting their respective 'hay-day' as the definitive approach. Leadership training focuses on the integration of the evolution of leadership theory and research related to the United States military.

The chapter divides these relevant areas into three parts, the old leadership paradigm, the new paradigm of leadership, and leadership training. The first part, or old paradigm, is based upon leadership research and history until the 1970s. The old paradigm covers leadership theory and research rooted in trait, behavior, and situation. The second part, the new paradigm, examines leadership investigation since then and speaks to the most recent evolution of how we look at leadership. The new paradigm explores the realm of transactional and transformational leadership, as well as outlining visionary leadership. While not exhaustive, both parts will contain discussion regarding certain aspects relevant to that period of the leadership paradigm. The review of literature

concludes with a look at leadership training, to include some issues related to training evaluation.

The material is organized thematically for two reasons. First, a chronological approach to leadership literature reveals less about the topic as it applies to the military. This is because theorists and researchers were using varied approaches concurrently. Second, a thematic approach invites viewing military leadership research through different lenses, seeing how key researchers evolved their characterizations of the field.

Leadership: Old Paradigm Research

The old paradigm of leadership research was characterized by the search for that one elusive factor that could explain why leaders are able to seize hold of a situation or environment and lead. This search primarily centered on how leaders give orders and provide support to their followers. The means that leaders used were then investigated in terms of traits, behaviors and situational contingencies. Later investigation into systems approaches still focused on the search for pivotal factors within the context of the system that individuals could use to increase their leadership impact.

Traits

The field of leadership study originated in "Great Man" (Galton, 1869) theory (Sashkin & Burke, 1990). Much of its evolution relates to military theory (Rosenbach & Taylor, 1996). The earliest text citing leadership is Sun Tzu's (1963) *The Art of War*, which defines leadership as the skill of the commander. The early literature revisits "Great Man" theory, from Musashi's (1974) *A Book of Five Rings* to Jomini's (1862)

The Art of War, a procedural guide to strategy, and finally to Clausewitz's (1832, 1976) *On War*, the modern military philosophical guide.

Jomini and Clausewitz wrote their works in response to the military success of Napoleon, attempting to define the reasons for his success. Napoleon, himself an early military leadership trait theorist, listed 115 qualities that are essentials for a military leader. This launched the trait trend that shaped early modern explorations on what makes a successful military leader.

Modern military leadership studies into trait theory began in earnest after World War II. Brodie (1973) suggests the impetus was the need for a mechanism of procedures, a scripted checklist. The military needed to insure coercion of the enemy once atomic weapons had upped the stakes of war. Builder (1989) proposed that the large number of war veterans studying the experience of war that they had just survived drove the interest in military leadership studies. The Army Research Institute funded numerous research studies designed to codify leadership.

Jenkins (1947) reviewed 74 studies of military leaders looking for four traits: extroverted, humor, intelligence, and initiative. He found that although these leaders tended to have some superiority over followers in at least one of a wide variety of abilities, there was little consensus on the abilities that characterized the leaders. He concluded that military leadership was specific to the military situation under investigation. Stogdill (1948), in his Navy-funded study, concurred with Jenkins' findings. Stogdill's study did, however, lend credence to the trait of charisma in leaders. It supported a study by Wickert (1947) that found that an officer had to appear sincere

and consistent to rate as a successful leader of a combat crew. Interestingly, theorists would later frequently cite these works by Jenkins, Wickert and Stogdill to support the view that leadership is entirely situational in origin and that particular personal characteristics cannot accurately predict leadership.

One trait indicative of leadership is the ability to identify leadership behavior and characteristics in others. Anderhalter, Wilkins, and Rigby (1952) studied candidates for the U.S. Marines Officers Candidate School. They found that candidates who showed the highest ability to predict other candidates' future effectiveness demonstrated a higher likelihood of company grade officer effectiveness. This finding was supported by Greer, Galanter, and Nordlie (1954), who found that infantry squad leaders tended to be more accurate than non-leader squad members in perceiving esteem of other members.

Hollander and Julian (1969) noted that people perceived as leader-like those individuals whose characteristics match the traits they ascribe to a leader. Other studies (Eden and Leviathan, 1975; Lord, Foti, & De Vader, 1984; Rush, Thomas, & Lord, 1977; and Weiss & Adler, 1981) listed specific traits as important aspects of leadership beyond situation or task (Hogan, Curphy, & Hogan, 1994). These included intelligence, honesty, sociability, understanding, aggressiveness, verbal skills, determination and industriousness. These findings corroborate Havron & McGrath's (1961) study of Army and Air Force small groups. They found that groups performed better when they perceived a close match between their actual leaders and their ideal.

Related research, found leaders to be more accurate than nonleaders in estimating how their group esteemed or valued them (Gallo and McClintock, 1962). Some studies

showed that leaders could also better perceive how others valued themselves. In his earlier work formulating a theory of leadership, Fiedler (1967) linked the trait of empathy to leadership. He assumed that being similar to others (thus able to empathize) was a fundamental component of leadership. This conclusion emerged from his 1950s studies of B-29 bomber crews, along with basketball teams, groups in open-hearth steel shops and surveying teams (Fiedler, 1953a, 1953b, 1954a, 1954b, 1955, & 1958). He found a link between leadership and the ability to perceive a difference between "preferred" members and "rejected" members. Groups were more effective when leaders were able to make this distinction.

Trait theory sought, for the most part unsuccessfully, to identify universal characteristics that leaders possessed. Stogdill (1948, 1974) concluded that there was no specified set of characteristics that reliably distinguished leaders from followers, or that could predict leader success. His and others' early studies did, however, lend credence to the existence of the trait of charisma in leaders (Stogdill, 1948).

Though investigation into traits proved useful, wide gaps remained. It was not enough to know that leaders may possess charisma. Without a universally binding set of characteristics, leadership theorists next turned to behavior in search of a unifying theme.

Behaviors

Throughout the 1950s, researchers at Ohio State University identified two broad leadership behavior orientations: initiating structure and consideration (Hemphill & Coons, 1950, 1957; Stogdill, Wherry, & Jaynes, 1953; Stogdill, Shartle, Scott, Coons, &

Jaynes, 1956; Stogdill & Coons, 1957; Stogdill 1959; and Halpin & Winer, 1957). Simultaneously, Michigan State University researchers were also delving into leadership behavior. In a series of studies, they identified differentiation of supervisory role, closeness of supervision, employee orientation, and group relationship as leadership behaviors related to high productivity (Kahn & Katz, 1952; Kahn, 1958, 1960; Cartwright & Zander, 1960; Likert, 1961; and Bowers & Seashore, 1966)

Bales' (1958) Harvard studies supported leader behavior research. He found that individuals who exhibited high levels of task accomplishment and relationship behavior were reported "typically" as leaders by their peers. Those who showed high relationship/low task behavior were "rarely" reported as leaders by peers, but high task/low relationship behaviors were "often" reported as leaders (Sashkin, Schwandt, Gorman, & Higgins, 1995). Although this approach appeared promising at first, research results eventually demonstrated (e.g., Fleishman & Harris, 1962) that by expressing high levels of both categories of behavior, leaders did not, in fact, attain exceptional performance outcomes.

A number of military studies focused on leader behaviors linked to positional power and intelligence. Flanagan (1952) looked at what critical behaviors were responsible for successful and unsuccessful noncommissioned officers. "Taking prompt action in emergency situations" was a critical behavior that differentiated those judged to be better from those whose performance was judged to be worse.

A majority of subordinates felt that "the commander should not be "just one of the boys" (Torrance, 1956-57). Successful officers more often encouraged their men to

follow rules and regulations, gave pep talks when the men were tired, and constantly checked the behavior of their men, taking a more mentoring form of leadership (Flanagan, 1952). However, in their studies of noncommissioned officers in the military, Moore and Smith (Moore, 1953a, 1953b; Moore and Smith, 1953) found that mentoring alone was insufficient to guarantee effective leadership.

Non-U. S. military studies shed some light on leadership and power as well, and echo Fiedler's shift toward situational context. Mulder (1986), in a survey of Dutch naval officers' performance, found that the officers relied more on formal and expert power in crisis conditions than in noncrisis conditions, according to their subordinates. Officers were more favorably evaluated by their superiors if they appeared to make more use of their formal power in crisis situations than in noncrisis situations. In crisis conditions, both the superiors and the subordinates of the officers looked for more authoritative direction from the officers. At the same time, the officers were evaluated more favorably by their subordinates if they appeared to be more openly consultative in noncrisis situations than in crisis situations. This move to identify effective leader behavior indicated that results were contextual, leading toward situational leadership theory.

The trend toward leader behavior led Clement and Ayres (1976) to revisit the Ohio and Michigan studies, along with other leader behavior studies. As part of the Army's "Leadership for the Seventies Study," they identified nine categories of organizational leadership: human relations, counseling, communication, management science, decision making, technical, supervision, planning, and ethics. They proposed

that these be addressed as hierarchical levels in a long-term leadership development program.

Behavioral-based research was paying off handsomely. Yet as researchers and theorists delved into how leaders behaved, it became apparent that the context within which they were operating played a singularly important role. As the 1970s concluded and the 1980s unfolded, researchers like Fiedler pioneered new ways of determining how the situation influenced the leader's behavior.

Situational Contingencies

Situational leadership theorists (e.g., Fiedler 1972; House, 1971; Hersey & Blanchard, 1969) contended that specific leadership styles are effective in certain situations. Fiedler's (1967) contingency theory of leadership effectiveness, House's (1971, 1974) path-goal theory, Hersey and Blanchard's (1969, 1972a, 1972b) situational leadership theory and Fiedler's (1986) cognitive-resources-utilization theory all attempted to show that situation moderates the effectiveness of leadership behavior. However, as in the case with trait research and earlier behavioral studies, investigation yielded only partial and inconclusive evidence at best (Yukl, 1994; 1989a; 1989b). A slightly different angle revealed somewhat more conclusive results about the effectiveness of one specific leader behavior, influence (Bass, 1990; Falbe & Yukl, 1992; Yukl & Falbe, 1991; Yukl, Kim, & Falbe, 1996; & Yukl & Tracey, 1992). Still, the picture was fragmented.

From the earliest investigations into trait theory of leadership, it was evident that the context within which the military leader was operating influenced leader

effectiveness. Much of the research conducted after World War II based itself on the situation of the war itself, thus providing a context for the research. For example, Stouffer et al. (1949) conducted large-scale surveys of American soldiers during World War II. The surveys confirmed that, particularly at lower levels in the organization, the military stressed rapid response to higher authority's orders even though a unit rarely operated under battlefield conditions.

Fiedler (1967) proposed his contingency theory to address the dichotomy of task-oriented and relations-oriented leaders. Fiedler asserted that group performance (leader success) is dependent upon leadership motivation (task or relationship) as measured by the Least Preferred Coworker (LPC) scale and situational favorableness (degree of leader control and influence). Leader success depends upon whether the leader is in a situation that suits his or her orientation (Fiedler, 1972). Moreover, the leadership style required depends on the favorableness of the situation (Fiedler, 1966).The implication for military leadership is that task-oriented leaders perform best in situations at the extremes (favorable or unfavorable situations). Relations-oriented people should be selected to lead in situations that are in-between (neither high nor low in favorability).

Fielder's LPC and contingency theory dominated the field throughout much of the late 1960s and early 1970s, steering the focus of leadership study away from trait theory and toward the cognitive resource focus. Fiedler and Chemers (1974) observed that:

> "for nearly 20 years, we have been attempting to correlate [LPC] with every conceivable personality trait and every conceivable behavior observation score. By and large these analyses have been uniformly fruitless." (p. 74)

Using his LPC studies as a foundation, Fiedler sought to create a way for leaders to match up their abilities to a leadership situation. The outgrowth of this effort was the Fiedler, Chemers, and Mahar (1976) leadership-training program. It identified leaders' orientation as task or relationship and then taught them to modify their leadership situations (Fiedler & Chemers, 1984). One field test of the leader-match training used Reserve Officer Training Corps cadets from 46 Western U.S. universities. The study found that leader-match trained cadets performed significantly better than those who had not received the training (Fiedler & Mahar, 1979).

Support for Fiedler's cognitive resources model, a subsequent outgrowth of the his contingency model, can be found in Bons and Fiedler's (1976) study of U. S. Army squad leaders. Intelligence correlated more strongly with successful squad performance when leaders were directive. However, research (Borden, 1980; Potter & Fiedler, 1981) on military groups also showed a negative correlation between high intelligence and performance in high stress situations. In an earlier experiment with small groups of ROTC students, Anderson and Fiedler (1964) found a correlation between task- vs relations-orientation and whether the leader was directive or participative. Related studies corroborated these findings (Fiedler, O'Brien, & Ilgen, 1969; Coska, 1974) and added that follower support and motivation were also a mitigating factor. In short, it appeared that Fiedler's argument that leader success depends on fit between leader personality and

situation was enjoying a strong degree of substantiation. Fiedler subsequently concluded that though leaders could not change their personal traits, it was possible for leaders to modify their own leadership situations in order to achieve success (Fiedler, Mahar, & Chemers, 1977; Fiedler & Chemers, 1984).

Blades (1976), using U.S. military personnel as subjects, determined that there was a high level of concern with a leader's intelligence and technical ability. Fiedler and Leister (1977) contended that "screens" between leadership intelligence and successful task completion limited the effectiveness of that trait. Intelligence was mitigated by motivation, experience, stress with boss, and leader-group relations. Leaders of higher intelligence produce more task-effective groups if they are motivated and experienced, if there is little stress between them and their superiors, and if relations are good between them and their subordinates. The model supported an empirical study of 158 Army infantry squad leaders and subsequent studies in the Coast Guard and elsewhere (Potter & Fiedler, 1981).

Fiedler and his colleagues further asserted that how the leader's intelligence impacted the group's effectiveness depended upon how that leader exercised that intelligence. Team performance positively correlated with leader intelligence when leaders were directive. Negative correlations emerged when leaders dispersed leadership by being nondirective, empowering, or allowed others to usurp their power (Fiedler, O'Brien, & Ilgen, 1969).

Building upon earlier research, (Fiedler & Meuwese, 1963; Meuwese & Fiedler, 1965; and Fiedler & Blades, 1976), Fiedler proposed his cognitive resource theory. He

asserted that leaders' intelligence abilities enhance group effectiveness only when those leaders are directive and not under stress, are supported by their groups, and are focused on tasks that require intellect (Fiedler, 1986).

Experience alone does not predict leader success (Fiedler, 1970), although relevant experience may be a predictor of leader success (Betlin & Kennedy, 1990). Cognitive capability and experience factor together to determine how successful a leader will be. Experienced leaders with intelligence who faced conflict with superiors still maintained productive groups. Intelligent leaders without experience were handicapped (Fiedler, 1984). Fiedler's cognitive-resources-utilization theory of leadership (Fiedler, 1986) outlined the situation in which a leader would most effectively use intelligence, competency and experience. How directive or participative a leader is depends upon leader personality and degree of control the leader has over the situation.

Theorists were slowly piecing together the leadership puzzle. Now they were aware of the interplay of characteristics, behavior and context. The next logical step, the foray into systems theory, was almost inevitable as they turned their attention to the impact of change. The systems approach drew them into the complexities of constantly shifting facets of time, people, environment and the organizational culture itself.

Systems Approach

A number of leadership researchers based their work in systems theory (Miller, 1971, 1978; Katz & Kahn 1966, 1978). They viewed a leader as integrated into a system that involves changing inputs from the environment, the organization, subordinates, the mission itself, and outputs in the form of task accomplishment (Bass, 1976).

Military systems-oriented leadership studies include Olmstead's work with command post simulations. Using Schein's adaptive coping cycle (1985), he found that organizational process performance correlated highly positively with organizational effectiveness (Olmstead, Christensen, & Lackey, 1973; Olmstead, Elder, & Forsyth, 1978). He also found that as groups experienced increasing loads of information, the command posts that referred as much decision making to the lowest possible level performed better than those who attempted to keep a centralized decision making structure (Jacobs & Jaques, 1987).

Hunt, Osborn, and Schriesheim (1978) saw the systems approach as a rich, largely neglected field for leadership researchers to mine. Throughout the 1980s, researchers explored such systems processes as upward and downward influence on military mission accomplishment (Van Fleet & Yukl, 1986) and systems differences between combat and noncombat context in conjunction with leader behavior and subordinate commitment (Gal, 1987).

Elliott Jaques tied cognitive power to systems theory in his military studies under the auspices of the U.S. Army Research Institute (Sashkin, 1995). Jaques' emergent stratified systems theory proposed that work in organizations is divided into five strata and that there should be no more than seven hierarchical levels. These are delineated by the time allotted to complete critical tasks and the critical skills needed to accomplish those leadership tasks (Jaques, 1976). Cognitive power is the ability to exercise judgment within the confines of the strata. An individual's cognitive power (not to be confused

with intelligence quotient) may mature to higher levels of cognitive complexity (Jaques, 1986) and is the only variable needed to understand leadership (Cason & Jaques, 1994).

One study involved interviews with 41 general officers. Content analysis of the interviews revealed themes that matched what stratified systems theory predicted for the requisite strata (Jaques, Clement, Rigby, & Jacobs, 1986). The theory was refined (Jacobs & Jaques, 1987) to include the idea that leadership at any strata of the organization required a "cognitive map" applicable to the tasks of that strata, and that absence of such a map would likely impact leader success.

Systems theory's primary contribution was the introduction of process into the leadership equation. While Olmstead looked at organizational process, Van Fleet and Yukl at the process of upward and downward influence, and Jaques at cognitive process, all were now dealing with the idea of interacting and counteracting forces. The old models were crumbling under the new dynamics.

The old paradigm was giving way. The introduction of systems theory's dynamism into leadership theory meant more than mere increasing complexity. It was now clearly inadequate to explore leadership in a fragmented manner. The idea that the pieces -- traits, behavior, and situation -- operated within a system forced a cognitive change. In order to incorporate the fragments into a coherent whole, researchers, led by James MacGregor Burns, literally re-mapped leadership theory into a totally new paradigm.

Leadership: New Paradigm Research

The new paradigm of leadership research focused on levels of actions that leaders use to lead successfully. These levels were looked at as being either transactional or transformational (Sashkin 1996a). Transactional leadership is characterized by the negotiation of contracts resulting in a *quid pro quo* between leaders and followers (Sashkin 1996d). Transformational leadership focuses on how the leader builds a culture that is stable and fosters the nurturing of followers into leaders who themselves are confident, empowering, and cognitively capable (Sashkin 1996d). Visionary leadership encompasses both transactional and transformational leadership, culminating in a cohesive leadership environment that is in itself a culture (Sashkin 1996e). Leaders and followers benefit from the stable culture and the nurturing of confident, empowering and cognitively capable followers of the transformational element. The *quid pro quo* negotiated contracts of transactional leadership function as a foundation. This results in a more accurate sharing of vision or next steps in context with the organization and its environment. This portion of the review demonstrates the evolution of the new paradigm as theorists from Burns through Bass to Sashkin reconstructed the old paradigm into a new vision.

Transformational and Transactional Leadership

The first steps in moving leadership studies from an immature to a mature field (Kuhn, 1970) came with the publication of James MacGregor Burns's *Leadership* (1978). It laid the groundwork that established the constructs of transactional and transformational leadership. The transactional-transformational paradigm incorporates

aspects of trait theory and is also a systems approach to leadership studies. Burns identified two basic types of leadership -- the transacting and the transformative. In doing so he built the framework for these two types of leadership to coexist by bringing two bodies of literature together and uniting the roles of leaders and followers in his definitions.

Theorists (Burns, 1978; Bass, 1985; Tichy & Devanna, 1990) have defined this concept of transformational leadership as leadership that involves change as contrasted with leadership that maintains the status quo. Burns also has defined transformational leadership as leadership that motivates subordinates to work for "higher-level" goals that transcend their self-interest. Burns (1978) describes the relations of most leaders and followers as transactional, a contractual (implied or overt) exchange of one thing for another. The transformational leader also, Burns asserts,

> ...recognizes and exploits an existing demand or need of a potential follower. But, beyond that, the transformational leader looks for potential motives in followers, seeks to satisfy higher needs, and engages the full person of the follower. The result of transforming leadership is a relationship of mutual stimulation and elevation that converts followers into leaders and may convert leaders into moral agents. (p. 4)

Lewis, Kuhnert, and Maginnis (1987) supported Burns's idea of two types of leadership. They added a third by sorting military officers into three styles of character in the hopes of defining behaviors, operators, team players, and self-defining leaders. They concluded that operators had a personal agenda that they pursued without concern for

others, lacked empathy, and were not trustworthy. Team players, on the other hand, were highly sensitive to how others felt about them and valued decisions according to what others thought or said. In contrast, self-defining leaders personally committed themselves to ideals and values. They pursued what they regarded as the most correct and worthy solutions. This three-category analysis formed a continuum that parallels what we today call transactional and transformational leadership.

Bass refined his take on transformational and transactional leadership theory to create The Full Range of Leadership Model (Bass & Avolio, 1994). This model presents a continuum from highly inactive leadership (laissez-faire) to highly active leadership (transformational). Avolio (1994) integrated this model with Total Quality Management (TQM), maintaining that full range of leadership can enhance TQM's success. Yammarino (1994) added that leaders can transmit their effect either through direct interaction or indirectly, cascading through subordinate levels or bypassing immediate subordinates to affect nonimmediate subordinates.

The scope of military research on transformational and transactional leadership is limited. Hunt, Ashcroft, Baliga and Phillips (1987) proposed a life cycle perspective of organizations that explored the potential of transformational leadership for enhancing organizational effectiveness. They argued that the life cycle approach is relevant to the armed forces because it reflects the environment of change within which the military operates. In Israel, a nation routinely at war, military training applies the principles of transformational leadership in order to gain a closer knit conscripted unit (Popper, Landau & Gluskinos, 1992). Boyd (1988) noted strong correlation between

transformational leadership and officer nationality, as well as measures of satisfaction, effectiveness and extra effort.

Most recently, Bass and Yammarino (1990; Yammarino, Spangler, & Bass, 1993), in a focal study of 186 U.S. Navy officers, found that transformational leadership produced a stronger correlation with subordinates' satisfaction and extra effort, as well as the officer-leader's effectiveness. Research at a military academy further indicates that traits may predict transformational-transactional leadership ratings (Atwater & Yammarino, 1993). A 32-month study at Virginia Military Institute (Avolio, et. al., 1996) supported these findings. Research (Ross & Offerman, 1991) on charisma and inspirational motivation using Air Force Academy cadets' MLQ results showed positive correlations with specific personality traits.

Bass holds that, upon historical reflection, it is apparent that in both the military and corporate sectors, transformational leadership is a significant factor in success versus failure (Bass, 1990). Boyd (1988) explains why.

> As the distinction lessens between military specialties and civilian jobs, leadership may become less transformational and more transactional, "which in turn may have a negative impact of military effectiveness" (Wakin, 1984, p. 3). Thus, the issue of transactional versus transformational leadership is a key one for the military...The leader, the followers, and the situation are all involved in the transactional approach just as they are in the transformational approach; however, the military must include a professionalism that demands self-training, role modeling and effective monitoring by leaders. No amount of technological

> expertise, education, or training will replace the ethical elements of leadership which build soldierly qualities essential to success. It becomes clear that there is a cultural match and a gain to be made in military effectiveness by increasing interest in transformational leadership. (p. 5)

The transformational-transactional model allowed great strides in leadership research. Burns's theory incorporated trait and behavior into a systems approach that brought the interaction between leaders and followers into sharper focus. More important, it implied that theorists should turn their attention to a heretofore neglected aspect of leadership, culture (Curphy, 1992; Van Elron & Burke, 1992). Visionary leadership, the next logical evolution, would shed new light upon the role of culture in leadership

Visionary Leadership

Most recently, Sashkin (1986, 1996a) has proposed a comprehensive conceptual framework of leadership theory (Colyer, 1996). Visionary Leadership Theory integrates the behavioral work of Bennis (1985), the personality-based research of Bandura (1982, 1986), McClelland (1975) and Jaques (1986), and Parson's (1960) and Schein's (1985) work on organizational culture. Sashkin's (1996a) theory encompasses three leadership categories: (1) behaviors, (2) personal characteristics, and (3) culture building.

The most effective leaders' behaviors, according to Rosenbach, Sashkin and Harburg (1996) are both highly transformational and highly transactional. Vona's (1997) recent research using Sashkin's approach supports this. Further, in a 17-month leadership

study at the U. S. Air Force Academy, Curphy (1991) demonstrated that transformational and transactional are not separate factors.

Sashkin (1996a) identified three specific personal characteristics visionary leaders must possess in order to carry out the leadership function: self-confidence, the pro-social need for power, and a high level of cognitive capability. Self-confidence is the belief that one controls one's own destiny and that locus of control is with the individual (Bandura, 1982, 1986). The need for power encompasses not only the requirement for a leader to possess power and influence, but the pro-social application of that power (Sashkin, Schwandt, Gorman, & Higgins, 1995). Cognitive capability or vision is "...the capability of understanding complex large-scale systems in terms of cause-effect chains of events and their interactions over time" (Sashkin, 1996a, 1996b).

Finally, a visionary leader has the potential to construct an organizational culture that supports, sustains, and directs organizational action over time. That culture enables the organization to achieve goals and maintain operational effectiveness, as opposed to authority or sanctions (Sashkin, 1996a, 1996b).

Sashkin recognized that a leader's behavior is a function of the person and the situation (Sashkin & Rosenbach, 1993). Visionary Leadership Theory invites multiple levels of analysis (Yammarino & Bass, 1991), to include empirical testing using TLP. Sashkin's theory predates Yukl's (1994) call for "a general theory of leadership" that integrates variables of trait, power, success criteria, behavior, and situation and belies Yukl's assertion that such a theory "has yet to be developed" (p. 19).

We can summarize visionary leadership best by citing the three fundamental differences between it and transformational-transactional leadership theory. First, it incorporates trait, behavior, and situation, building upon the old paradigm. Second, it considers how the transformational leader empowers followers. Lastly, visionary leadership links these individual variables with organizational level factors as culture-building (Vona, 1996).

To summarize, the new paradigm of leadership grew out of Burns's revolutionary model of leadership as being transactional or transformational. Though Burns did not do away completely with trait, behavior, and situation, he recombined them into an entirely new way of looking at leadership. The research by Bass and others refined the model and tested its application to diverse areas, including the military arena with which this study is concerned. Sashkin took the matter a step further with visionary leadership theory. By adding the culture-building component, he theorized a comprehensive conceptual framework of leadership theory. The final part of this literature review will look at leadership training in the military, reviewing how military organizations have applied old and new paradigm theories in pursuit of that elusive quality: leadership.

Leadership Training

Though the military focuses intensely on leadership training, particularly for the officer corps (Bass, 1996), limited research exists that examines the effectiveness of that training. Studies tend to explore the *leader's* effectiveness as opposed to the *training's* effectiveness in enhancing leadership (Campbell, Dunnette, Lawler, & Weick, 1970; Fiedler, 1972).

One early exception (Hood, Showel, & Stewart, 1967) compared U.S. Army squad leaders who received leadership preparation training with a control group of leaders who did not. The trained leaders received higher effectiveness ratings, their squads showed higher spirit, and their followers scored higher on proficiency tests. Followers indicated that trained leaders initiated more structure, exercised better control of field exercises, and demonstrated more adequacy in briefing and giving information.

However, the traditional form of leadership education did not provide direct causal results. Rittenhouse (1968) found that graduates of noncommissioned officers infantry leadership schools exceeded their control group in rate of promotion and number of awards, but not in leadership evaluations. Military trainers have achieved better success by using an integrated form of military leadership education. Automated instruction (Showel, Taylor, & Hood, 1966; Lange, Rittenhouse, & Atkinson, 1968) was as effective as conventional methods in training U.S. Army noncommissioned officers.

On the other hand, Hood, Showel, and Stewart (1967) evaluated an integrated system for training noncommissioned officers that was composed of lectures, group discussions, films, and role playing of human relations problems, with a short course follow-up. The results of the four-week leader-preparation course were that participants' scores on written and performance proficiency tests at the end of the program were significantly higher than those of the control group. The integrated system and the short course also produced higher scores on written tests, but the differences were not statistically significant.

In the mid-19770s the U.S. Army used LEADER-MATCH programmed leadership instruction (Fiedler, Chemers, & Mahar, 1976, Fiedler, Mahar, & Chemers, 1977; Fiedler & Chemers, 1984). LEADER-MATCH was originally developed under a Naval Research Projects contract (Fiedler, Mahar, & Chemers, 1977). Based on this contingency model program, a leader first determined his leadership style, relationship-motivated or task-motivated. The leader then learned how to modify the situational favorableness of the job, creating a closer match between leader style and the situation. Leaders trained in this method performed more effectively than untrained peers based on supervisor and subordinate performance ratings (Fiedler, Mahar, & Chemers, 1977; Fiedler & Mahar, 1979).

Gal (1987) argued in favor of a transformational model of leadership. He asserted that the older situational models ignored commitment. Commitment, he believed, was a central concept in motivation (Gal, 1985). Bass (1996) notes that research using military subjects revealed that transformational leader behavior that raised follower self esteem enhanced group performance (Eden & Shani, 1982). Charismatic and inspirational leadership instills confidence (Bass, 1996) which reduces stress in combat (Gal & Jones, 1985).

"Transformational leadership can be taught and learned" (Bass, 1996). Bass believed that transformational leadership training must begin at the top. However, he noted, it does not occur much more at the top of an organization than at lower levels. Charismatic leadership in particular, he added, has a cascade effect. Bass summarized,

> Training and education in transformational leadership must promote self-understanding, awareness and appreciation of the range of potential leadership behaviors used by both effective transformational and transactional leaders. It must go beyond skill training. It must be internalized and point to the extent that the best of leaders are both transformational and transactional but they are likely to be more transformational and less transactional than poor leaders. (p. 113)

Avolio and Bass (1991) developed the Full Range Leadership Program to train leaders in transformational and transactional leadership. The prototype program has a basic three-day workshop and a follow-up two-to-three-day advanced workshop. The Full Range Leadership Program uses discussion, films, role-playing and problem-solving. Bass's Multifactor Leadership Questionnaire provides leadership profiling. Bass claims "generally, positive results" (p.195) but admits that "Much of what has already been learned about the training of civilians in transformational leadership has not been fully exploited by the military." (p. 195)

The military holds that leadership characteristics and attributes can be trained (Denton, et. al., 1991). Currently, each service has multilevel officer professional

Table 1

Leadership Competencies

NAVY	ARMY	COAST GUARD
Communicating	Communications	Interpersonal Relations
Maintaining Standards	Supervision	Recognition
Planning	Teaching & Counseling	Power Uses
Building Esprit de Corps	Soldier Team Development	Situational Leadership
Training & Development	Technical/Tactical Proficiency	Change
	Decision Making	Performance
	Planning	Problem Solving
	Use of Available Systems	Motivating Work
	Professional Ethics	Work Group Development

development schools, and each service has a different leadership training emphasis. Examples are shown in Table 1 (Denton, et. al., 1991).

Each service also promotes certain leadership factors and principles (Table 2) through officer professional development training (Denton, et. al., 1991). Much similarity exists across service lines.

Table 2

Leadership Factors and Principles

NAVY	ARMY	AIR FORCE	MARINE CORPS
Set an example	Know yourself	Know yourself	Know yourself and seek improvement
Learn to be a good follower	Seek self-improvement	Care for people	Be technically and tactically proficient
Know the job	Be technically and factually proficient	Set an example	Seek responsibility
Establish objectives and plans for accomplishment	Seek responsibility	Communicate	Make sound and timely decisions
Take responsibility for actions	Take responsibility for actions	Motivate	Set the example
Be consistent but not inflexible	Make sound and timely decisions	Equip your unit properly	Know your Marines and look out for their welfare
Seek responsibility and develop responsibility in others	Set an example	Accept your responsibility as a leader	Keep your Marines informed
Treat every person as an individual, not a number	Know your soldiers and take care of them		Develop a sense of responsibility in your subordinates
Keep subordinates informed	Keep your soldiers informed		Train Marines as a team
	Develop sense of responsibility in subordinates		Insure the task is understood, supervised and accomplished
	Be sure task is understood, supervised and accomplished		Employ your unit in accordance with its capabilities
	Train soldiers as team		
	Employ your unit in accordance with its capabilities		

Training Evaluation

Implicit in any study involving change as a result of leadership training, or any other study of training, is the issue of evaluation of that training's effectiveness. Kirkpatrick (1967) postulated a model of training evaluation that outlines four steps. The first, *reaction*, looks at how well trainees like a given training program. *Learning* examines "the principles, facts, and techniques which were understood and absorbed" (p. 96). The third step, *behavior*, is perhaps the most difficult effect of training to evaluate. "Measuring changes in behavior resulting from training programs" Kirkpatrick notes, "is a very complicated procedure. But it is worthwhile..." (p. 105), he asserts, calling for statistics and research to devise methods of evaluation. The fourth and final step, *results* can be defined as measurable changes. Kirkpatrick adds that from an evaluation standpoint, "there are so many complicating factors that it is extremely difficult, if not impossible to evaluate certain kinds of programs in terms of results" (p. 106) and recommends that training be evaluated in terms of the first three steps, reaction, learning, and behavior.

Burr (1967) supports Kirkpatrick's notion of the worth of measuring behavioral change, noting that most training focuses on changes related to acts, skills, and responses, as opposed to development, which produces human growth. While he also agrees with Kirkpatrick's valuation of empirical data, he discards the idea of *reaction* as a "specious device" (p. 394). Youmans (1967) believed that all such tests were related to human behavior. He stated that the behaviors measured in evaluating training were mental ability, achievement/proficiency, performance, and characteristics/motivation.

Tracey, Hinkin, Tannenbaum, and Mathieu (1997) applaud the utility of Kirkpatrick's model, but fault it for its lack of specificity. They advocate Kraiger, Ford, and Salas' (1993) classification scheme that evaluates training in terms of skill/behavior based learning, cognitive learning, and affective learning. Some authors (Hamblin, 1974; Noe & Schmitt, 1986) view the Kirkpatrick model as hierarchical, with each subsequent step causally linked to the preceding one. However, efforts at proving such a correlation empirically (Alliger & Janak, 1989) have proven so far inconclusive.

For the purpose of job performance in terms of skill training, Kirkpatrick's model makes sense. For example, trainers seeking to train a person to be a welder would want the welder to: (1) have a good experience during the training (*reaction*), (2) know conceptually what is needed (*learning*), (3) have the skills to manipulate the materials so that a good weld is made (*behavior*), and (4) if that is the case, expect to see measurable *results* (i.e., fewer breaks, stronger welds and so on). However, in the executive management training realm the concept of measuring impact is not as clear cut. Often, consultants have been certain that positive change had occurred following training, only to find no evidence of change or even evidence of negative change when comparing mean scores on surveys. What is needed is a model that evaluates the cognitive shifts in the trainees that indicate not merely that they have learned a new skill but that the foundation of their cognitive schema has been altered in a manner that allows them to look at their world in new ways.

Golembiewski et al. (1976) suggested that the entire concept of change needed clarification. One method of evaluating training-effected change in cognitive schema is

through assessment of alpha, beta and gamma change (Golembiewski et al., 1976; Golembiewski & Billingsley, 1980). Golembiewski et al. postulated that alpha change represents variation that occurs when both the measuring instrument and the conceptual domain remained constant. Beta change is that variation that occurs when the intervals of the measurement variable change while the conceptual domain remains constant. Gamma change occurs when the conceptual domain has been redefined and the trainee's entire frame of reference changes.

In beta change, what the trainee has experienced in the leadership program changes how he or she looks at, say, a 1-5 Likert scale in a measurement instrument. Trainees may actually give lower self-scores after a leadership training program because what they learned caused a change in how they perceive what "1" and "5" mean relative to each other. Gamma change means that the program has changed the trainee's entire concept of leadership. Such fundamental conceptual changes are reflected by instrument score changes that are constant longitudinally.

Needless to say, the assessment of beta and gamma change seriously complicates the trainer's evaluation of change efforts. These assessments manifest themselves when self-reported data are used to document change in studies of organizational development, leadership training, or job design. The usual analysis of change involves the comparison of the means of pre and post intervention responses. Changes in self reports are conceived as occurring along relatively stable categories of reality. Analysis of change in this manner is designed to detect what Golembiewski & Billingsley (1980) call alpha change.

While agreeing with Golembiewski et al. (1976) that a change in factor structure might indicate gamma change, Lindell and Drexler (1980) also argue that alpha or beta change could produce changes in factor structure and that if more emphasis were placed on use of psychometrically sound scales, problems associated with beta and/or gamma change would be less frequent. Thus assessment of alpha, beta, and gamma change as well as providing an approach to the measurement of individual and group change must be tied to a pretest, an intervention and a postest. They suggest the use of a "then" measure after an intervention, in addition to the usual pre and post measures.

It is possible to loosely connect Kirkpatrick's (1967) steps of *reaction, learning, behavior, and results* to the Golembiewski et al. (1976) model of alpha, beta, and gamma change in the form of a rational model. Specifically what such a model looks at is learning, behavior and outcomes (Lafferty, 1996; Lafferty & Sashkin, 1997). Given that, the model would say that there are really three kinds of outcomes, excluding Kirkpatrick's step of *reaction* as trivial. The existence of an outcome that is affected by a change in knowledge that results in an alteration in behavior is alpha change (Golembiewski & Billingsley, 1980). Such a change might be correlated with Kirkpatrick's step of *reaction*, but it is most closely related to the steps of *learning* in the form of new knowledge and *behavior* in the form of new skills and applications.

It can occur that an outcome is affected by realization that the measure itself has changed. The old, now inaccurate, perception of the measure with which the individual operated has been dramatically shifted to such a degree that what the individual reconceptualizes is not the nature of the measure but the measurement itself. This is beta

change (Golembiewski & Billingsley, 1980). Beta change is an important outcome if only in that it enables a person to set more realistic outcome goals and to find out why people are not happy with the outcome goals that they had because they really shifted. Beta change, then, would correlate with Kirkpatrick's steps of *learning* in the form of changed conceptualized understanding of the meaning of measurements and *behavior* in terms of new understanding of the measures of actions, that being the effects of actions.

Finally, there is the outcome which is the most difficult to achieve because its aim is not merely incremental learning, changed behaviors, or observed outcome results, for that is performance and profit. The aim of this type of change is more basic than altering the basic understanding of something, of the organization, of its mission, of its structure, of its fundamental foundational values or all of these combined (Golembiewski & Billingsley, 1980). This is the realm of gamma change, which could be loosely correlated to Kirkpatrick's concept of steps. Gamma change, however, goes well beyond in that the basic outcome is affected not merely in terms of the bottom line measurements but in terms of reconceptulization that allow one to better and more effectively understand the true effects of actions over the long run.

Gamma change is very unusual and difficult to bring about. So it may very well mean that even if gamma change is achieved, a positive measurable change in *reaction* according to Kirkpatrick may likely not be present. This is because people who go through gamma change are often very unhappy, as most individuals are when they find the basic fundamentals of what they believe are disconfirmed. Consequently, people often do not want gamma change. Gamma change is difficult because it doesn't mean

learning more or learning facts; rather, it is a change in learning how to learn. Gamma change doesn't merely mean better, new, or different behavior: it means a reinterpretation, a deconstruction and reconstruction of what the individual's behavior means resulting in actions not envisioned in the original training program. For example, a trainee might have seen the desirable outcome of executive leadership training as increased command opportunities. Post-gamma change, the trainee may realize that increased command opportunity is immaterial because the foundation of the organization is mis-matched to its vision, task, and environment and that he or she should focus on restructuring.

The leadership training studies reviewed here focused on how the military applied both old and new leadership paradigms to leadership training. Though there have been some efforts at applying transformational leadership theory, the focus of most military leadership programs continues to be characteristics and behaviors. Most military leadership programs continue to insist that leadership can be learned, which brings us to evaluation. The summary of Kirkpatrick and Golembiewski et al. points out that evaluation of training effectiveness is at best complex and at worst extremely difficult. The framework of alpha, beta, and gamma change is a useful model for assessing type and degree of change.

Conclusion

No single lens has been determined to be the ideal one for viewing military leadership. Fiedler assessed the leader's style and how to modify the situation to match. Bass measured the leader's style coupled with specific behaviors and personality traits as

a predictor of future success. Sashkin holds that leaders can train to strengthen their transformational and transactional leadership skills. Some of the newer visionary leadership work of Sashkin may prove valuable in exploring military leadership training.

Though many current leadership training programs assert they are teaching transformational leadership (Conger, 1994), the question remains whether these programs actually have an effect on the participants. Rigorous review of the literature reveals few military leadership training studies extending beyond a few months. One exception is a recent one-year study (Lafferty, 1996; Lafferty & Sashkin, 1997) demonstrating change in leadership scores of officers attending the U. S. Air Force's Air Command and Staff College.

One reason why longitudinal research in transformational leadership is sparse may be because it is difficult. Recent and growing interest in this area, particularly in military circles, has opened unusual opportunities for longitudinal research. The present study has been designed to take advantage of these unique opportunities by studying the effects of a long-term transformational leadership program.

CHAPTER 3: METHOD

Overview

This chapter includes the research design, research hypotheses, and methodology used to test the hypotheses. Additionally, a description of the site samples and sample collection are discussed; and the measures and statistical techniques utilized are outlined.

Research Design and Methodology

This study used measures of leadership behaviors and characteristics to assess longitudinally whether the ACSC leadership program resulted in changes in individuals' leadership as determined by TLP scores. The recurrent institutional cycle design (Campbell & Stanley, 1963) used examines changes in leadership scores for different groups obtained at the same and at different points in time. The OCAQ was used to provide a test for equivalence required by the recurrent institutional cycle design. This was necessary because of the comparisons of TLP leadership data across time. If ACSC dramatically changed over the time of the study, it may have affected the collected TLP data. Use of the OCAQ insured that such change did not go unnoticed. OCAQ Demographics are included Appendix D, Table 8.

Specific Research Questions and Hypotheses

This study was designed to determine whether there is a relationship between leadership training and subsequent changes in individuals' leadership behaviors and characteristics. This research investigated whether changes to individuals' leadership behaviors and characteristics can be attributed to leadership training, both after the training intervention and one or more years after the intervention, when participants are at their jobs, applying the lessons learned. Figure 1 gives an overview of the working model

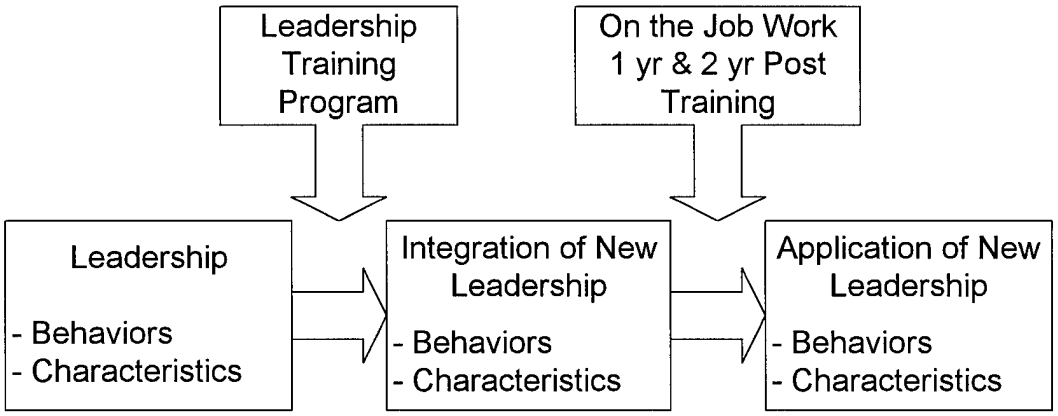

Figure 1. Relationships Under Investigation

used to operationally define leadership training and individual leadership style and characteristics.

In this investigation leadership is defined as leader behavior and characteristics. Integration of new leader behaviors and characteristics occurs after the participant graduates the training program and applies these new leader behaviors and characteristics in his or her job, one year after the training.

Consistent with prior research (Sashkin, 1994, 1995, 1996a; Sashkin & Rosenbach, 1993), it is proposed that leadership behaviors and leader characteristics can be changed and enhanced by a training program. The following specific hypotheses are therefore presented.

- H1 - Participants in the same year group, as measured by TLP scores before and after attending ACSC, will show an increase in both transactional and transformational scores.
    - H1O - Participants in the same year group will not show any changes in leadership (transactional and transformational), as determined by TLP scores after the intervention compared with TLP scores obtained prior to the intervention.
- H2 - Participants in the same year group will show a continuing increase in both transactional and transformational TLP scores one year after the intervention compared to their scores taken immediately after the training intervention (H2A) and between one and two years after the intervention (H2B).
    - H2O - Participants in the same year group will not show any changes in TLP scores (transactional and transformational) one year after the intervention compared to their scores taken immediately after the training intervention (H2AO) and between one and two years after the intervention (H2BO).
- H3 - The improvement in TLP scores post-intervention will be equivalent for all classes. All should improve. There should not be dramatic differences because both classes are selected the same way and go through the same program.

Site

ACSC, Air University, located at Maxwell Air Force Base, Alabama, is the institution central to Air Force leadership development. It is a certificated, ten-month leadership school and is part of a four-tiered professional military education program that spans the length of the officer's career. This four-tiered University includes Officer Training School (the entry-level officer commissioning program), Squadron Officer School (for company grade officers of lieutenant and captain ranks), ACSC (for field grade officers of major rank), and Air War College (for lieutenant colonel and colonel ranks).

Sample

ACSC, the focus population for this study, competitively selects the top ten percent of field grade officers. The purpose of the ten-month program is to prepare the officer for greater responsibility, specifically command. Each class is composed of approximately 600 students representing all four U.S. military services with the preponderance being U. S. Air Force officers. Foreign military officers are also part of the student population but were not included in this study. There is no class ranking upon graduation. Total N's for the three ACSC Classes were as follows: Sample 1 (ACSC Class 94-95) Total number of students 582, of that 70 were international officers. Sample 2 (ACSC Class 95-96) Total number of students 592, of that 77 were international officers. Sample 3 (ACSC Class 96-97) Total number of students 601, of that 80 were international officers.

Sample Collection

Data used for this study was taken from the ACSC Database compiled from all students attending the program. For the purpose of this study, international students were not included in the sample. The database contains The Leadership Profile, The Organizational Cultural Assessment Questionnaire and Biographic and Demographic data. Attention was paid to bias caused both by collection procedures and the fact that the research was present at ACSC during the 94-95 school year. The TLP and the OCAQ (when administered) were collected on separate dates set a minimum of two days apart so as to not to influence each other. Data collected in the ACSC Database is covered by the Freedom of Information Act and ACSC's Non-attribution policy.

The study was approved by the Air University Review Board, Air Force Institute of Technology/CI and registered with the Air Command and Staff College Department of Research as ACSC Study 95-0001. All participants were informed that their name, address or social security number (used for sorting reasons) would be held in strictest confidence and not released by briefing and instruction sheet (Attachments 3-7). All subjects' participation in the survey was voluntary and required their informed consent

Pre- and post-intervention surveys were administered at ACSC at the beginning and end of the program and hand delivered by each of the 44 seminar leaders to the Dean of Education's office where they were collected and stored upon completion. Subsequent collection of one and two years after the training intervention was made by mail. All questionnaires (whether distributed at ACSC or mailed) included a rationale letter which explained why the study was being conducted, answered anticipated questions about the

study, and guaranteed anonymity. For those administrations for which questionnaires were handed out at ACSC, the Dean of Students sent an electronic mail message to all seminar leaders encouraging trainees to participate. Each administration of the questionnaires, both directly handed out and mailed, included the same rationale letters and directions for completing the TLP and OCAQ. All mailed questionnaires included a forwarding request should the respondent have moved. Surveys returned for incorrect or expired forwarding address were sent to the parents of the respondent to be forwarded whenever feasible. All responses were cross-checked against the original address and updated as required. Finally, all mailed surveys included an addressed, stamped envelope for the reply.

Biographic and Demographic Variables

Demographic data was collected on the three classes from the ACSC Database. This data was used to describe the sample and control for any intervening variables unrelated to the variables under investigation. The master sample was composed of three samples, one for each year group. Within the first sample (ACSC Class 94-95) are two sub-samples, one and two years after the intervention. Within the second sample (ACSC Class 95-96) are three sub-samples, pre-intervention, post-intervention and one year after the intervention. Within the third sample (ACSC Class 96-97) are two sub-samples, pre-intervention and post-intervention. Demographic data was computed for all respondents in a given year-group.

Demographic variables were examined to eliminate rival hypotheses and possible confounding effects. The following data was collected: (1) Rank, (2) Service, (3) Source

of Commission, (4) Aeronautical Rating, (5) Gender, (6) Race, (7) Marital Status, (8) Military Spouse/Service, (9) Number of Children, and (10) Highest Level of Education. A further variable, selection for promotion ahead of contemporaries to examine if early promotion significantly affected TLP scores, could not be investigated. Only six respondents from the first sample (ACSC Class 94-95) and eight respondents from the third sample (ACSC Class 96-97) provided matched data. No promotion board was convened during the second sample (ACSC Class 95-96). Demographic data concerning Service, Source of Commission, Areo Rating, Ethnicity, Gender, Marital Status, Military Spouse, Education Level for all three samples can be found in Tables 3-5.

Table 3

ACSC Class 94-95 Demographic Data

SERVICE	*N*	*%*	**GENDER**	*N*	*%*
USAF	159	84.574	MALE	162	86.17
USA	9	4.787	FEMALE	26	13.83
USN/USMC	13	6.915			
CIVILIAN	7	3.723			
SOURCE OF COMMISSION			**MARITAL STATUS**		
AF ACADEMY	29	15.591	MARRIED	161	85.638
ROTC	59	47.849	SINGLE	22	11.702
OTS/OCS	63	33.871	DIVORCED	5	2.660
OTHER or NA	7	2.688			
AERO RATING			**MILITARY SPOUSE**		
PILOT	35	18.617	NO	176	93.617
NAVIGATOR	34	12.766	YES	12	6.383
AIRCREW	2	1.064			
MISSILEER	3	1.596			
NONE	124	65.957			
ETHNICITY			**EDUCATION**		
CAUCASIAN	168	90.811	BACHELORS	19	10.106
BLACK	12	6.486	MASTERS	159	84.574
ORIENTAL	0	0.00	DOCTORATE	10	5.319
HISPANIC	3	1.622			
OTHER	2	1.081			
MISSING VALUE	3				

n=188

Table 4

ACSC Class 95-96 Demographic Data

SERVICE	*N*	*%*	**GENDER**	*N*	*%*
USAF	348	80.556	MALE	373	86.143
USA	35	8.102	FEMALE	60	13.857
USN/USMC	35	8.102			
CIVILIAN	14	3.241			
MISING VALUE	1				
SOURCE OF COMMISSION*			**MARITAL STATUS**		
AF ACADEMY			MARRIED	377	87.471
ROTC			SINGLE	54	12.529
OTS/OCS			MISSING VALUE	2	
OTHER or NA					
AERO RATING			**MILITARY SPOUSE**		
PILOT	133	30.716	NO	395	91.435
NAVIGATOR	51	11.778	YES	37	8.565
AIRCREW	0	0.00	MISSING VALUE	1	
MISSILEER	0	0.00			
NONE	249	57.506			
ETHNICITY			**EDUCATION**		
CAUCASIAN	388	89.607	BACHELORS	154	35.648
BLACK	38	8.776	MASTERS	273	63.194
ORIENTAL	0	0.00	DOCTORATE	5	1.157
HISPANIC	0	0.00	MISSING VALUE	1	
OTHER	7	1.617			

* Data Not Available Sample n= 433

Table 5

ACSC Class 96-97 Demographic Data

SERVICE	*N*	*%*	**GENDER**	*N*	*%*
USAF	412	79.079	MALE	454	87.14
USA	44	8.445	FEMALE	67	12.86
USN/USMC	46	8.829			
CIVILIAN	19	3.647			
SOURCE OF COMMISSION			**MARITAL STATUS**		
AF ACADEMY	105	20.154	MARRIED	446	85.605
ROTC	254	48.752	SINGLE	75	14.395
OTS/OCS	162	31.094	DIVORCED	0	0.0
OTHER or NA	0	0.0			
AERO RATING			**MILITARY SPOUSE**		
PILOT	110	21.113	NO	490	94.231
NAVIGATOR	56	10.749	YES	30	5.769
AIRCREW	0	0.0	MISSING	1	
MISSILEER	0	0.0			
NONE	355	68.138			
ETHNICITY			**EDUCATION**		
CAUCASIAN	471	90.403	BACHELORS	85	16.315
BLACK	46	8.829	MASTERS	418	80.230
ORIENTAL	0	0.0	DOCTORATE	18	3.455
HISPANIC	0	0.0			
OTHER	5	0.768			

n=521

Independent and Dependent Variables

The independent variable, that is, the quasi-experimental treatment, is attendance at ACSC. The dependent variables are trainees' transformational and transactional leadership scores as measured by transformational and transactional TLP scores.

Instrumentation

The Leadership Profile (TLP) (Sashkin, 1994, 1996b; Rosenbach, Sashkin, & Harburg, 1996) was used to assess the dependent variables of leadership. The instrument was selected based on its integrating, cumulative theoretical framework and its

developers' belief that leadership behaviors and characteristics can be learned. The TLP instrument can be found at Attachment 1.

The Organizational Cultural Assessment Questionnaire (OCAQ) (Sashkin, 1990a, 1990b, 1990c, 1990d) was used to provide a test for equivalence required by the recurrent institutional cycle design. This was necessary because of the comparisons of TLP leadership data across time. If ACSC dramatically changed over the time of the study it would affect the collected TLP data. Use of the OCAQ insured that such change did not go unnoticed. The OCAQ instrument can be found at Attachment 2.

TLP Psychometrics

TLP is a 50-item questionnaire that is the most recent revision of Sashkin's (1990c, 1991, 1992, 1996c) Leader Behavior Questionnaire (LBQ). Although both instruments are 360 degree assessments, with provision for both self and other reports, only TLP self-reports were used in the study. Factor analysis of the LBQ, from which the TLP is derived, demonstrated moderate to strong support for the personal behavior and characteristics scales of the LBQ (Sashkin, 1990a, 1990b).

The strategy used in developing both the LBQ and TLP scales has been to write items designed to fit the specific scales that are conceptually related to the theme assessed by a particular scale (Sashkin, 1996b). This strategy was used from the inception of work on these instruments; no massive item banks were ever constructed so as to have many items that could be discarded after factor analytic studies. Thus, over the fifteen years of development of the instruments, items have continually been studied and revised as indicated by item-scale reliability tests and factor analyses.

Concurrent validity of the LBQ has been demonstrated through multiple studies that include educational, church, and business organizations, both industry and retail (Sashkin, 1996d, 1996e). High LBQ scores have been linked with such effectiveness measures as high school students' test scores, organizational culture measures, and organizational performance (Endeman, 1993; Major, 1988; Lafferty, 1996; Colyer, 1996). Cronbach's α (Cronbach & Furby, 1990) on TLP currently show good to excellent item-scale reliabilities. Sashkin suggests that the Scale 8 coefficient consistently reports low because Scale 8 factors into two clear subscales, one that assesses pro-social power, the other that measures the respondent's personalized power need. Scale 8 was designed to assess these two separate constructs (Appendix E, Tables 10-12); thus, the fact that its Cronbach's α is low while the scale forms into two clear factors supports the design intent.

TLP Test-Retest Reliabilities

TLP test-retest reliabilities have been performed on two datasets (Sashkin, 1996b). These analyses provide test-retest reliabilities for Visionary Leadership Theory as well as the TLP. Results indicate significant test-retest reliabilities on the order of .5 or greater (Lafferty, 1996) adding to one's confidence that the TLP domains do, in fact, represent independent aspects of leadership.

Factor Analysis Results: TLP Self

Factor analyses have been performed on several datasets. These analyses provide construct support for Visionary Leadership Theory as well as the instrument. Extensive

discussion of these analyses is presented in Sashkin (1996b), Lafferty (1996) and Lafferty and Sashkin (1997).

OCAQ Psychometrics

Sashkin's *Organizational Culture Assessment Questionnaire (OCAQ)* is a 50-item instrument based on Parsons, "action framework" (1960). Parsons identified four crucial organizational functions: adapting to change, attaining goals, coordinating internal activities, and developing a shared set of assumptions, values, and beliefs - a culture. This culture works to support the effective operation of the prior three functions, for the specific conditions and environment in which the organization exists. Parsons further argued that all organizations must carry out these four crucial functions if they are to survive for any substantial length of time. Sashkin labeled these four functions *managing change, achieving goals, coordinating teamwork, and building a strong culture.*

One aspect of the way in which organizations achieve their goals is especially important, yet often neglected. This factor has been made into a separate, fifth scale: *customer orientation.* Each of the five *OCAQ* scales has six items, with each item score ranging from 1 (low or poor) to 5 (high or good). Thus, scale scores can range from a low of 6 to a high of 30, and the *OCAQ* total score can be as low as 30 or as high as 150.

- *Managing Change* (Scale I): assesses the degree to which respondents see the organization as effective in adapting to and managing change. The specific items ask about actual success in dealing with change and about the presence (or absence) of the positive values

- *Achieving Goals addresses* (Scale II): asks respondents to describe how effective the organization is in achieving goals, the extent to which there are coherent and shared (aligned) goals, and the degree to which shared values support improvement and achievement rather than the status quo.
- *Coordinated Teamwork.* (Scale III) assesses the extent to which an organization is effective in coordinating the work of individuals and groups. This scale also gets at the extent to which the shared value of collaboration is present.
- *Customer Orientation.* (Scale IV) assesses the extent to which organizational activities are directed toward identifying and meeting the needs and goals of clients and customers. The scale also examines the extent to which basic and strategic values that support an effective customer orientation are present.
- *Cultural Strength* (Scale V) assesses the strength of the organization's culture, asking respondents to report on the extent to which people agree on values and examining the extent to which certain values are present.

The *OCAQ* can then provide baseline data that show existing patterns and discrepancies between organizations, groups or in this case samples.

Concurrent validity of the OCAQ has been demonstrated through multiple studies that include banking, educational, and business organizations, both industry and retail (Sashkin, Rosenbach, & Mueller, 1994; Sashkin & Sashkin, 1993a, 1993b, 1990; Sashkin, Rosenbach, Deal & Peterson, 1993). High OCAQ have been linked with performance such effectiveness measures as high school students' test scores,

organizational culture measures, and organizational performance (Endeman, 1993; Major, 1988; Lafferty, 1996; Colyer, 1996).

OCAQ Test-Retest Reliabilities

TLP test-retest reliabilities have been performed on two datasets (Sashkin & Sashkin 1993, 1990; Lafferty, 1996 and Lafferty & Sashkin 1997). Results indicate significant test-retest reliabilities on the order of .5 or greater (Lafferty, 1996; Lafferty & Sashkin, 1997) adding to one's confidence that the OCAQ functions do, in fact, represent independent aspects of culture.

Factor Analysis Results: OCAQ

Factor analyses have been performed on several OCAQ datasets. These analyses provide construct support for Visionary Leadership Theory as well as the instrument. Extensive discussion of these analyses is presented in datasets Sashkin & Sashkin (1990, 1993), Sashkin (1994b), Lafferty (1996), and Lafferty and Sashkin (1997).

This ability to identify characteristics of the "fabric" of an organization identifies the OCAQ as an equivalence test between two groups thus serving as a comparison base for the recurrent institutional cycle design (Campbell & Stanley, 1963).

Research Procedure

The ACSC Leadership Database was used as the source of all data on the approximately 500 field grade participants in this certificated military leadership training program. Three years of data using the ACSC Leadership Database were available. Instrument data contained in the ACSC Leadership Database include TLP, OCAQ and demographic data. International students whom ACSC includes in its student body

(approximately 150) were not included in this study. The ACSC Leadership Database collects data at the beginning of the ACSC school year, at the end of the ACSC school year just prior to graduation, one year after completing of the program and two years after completion of the program.

Research Design

This study was designed to determine whether there is a relationship between leadership training and participants' leadership styles and characteristics as determined by TLP scores. This research examined the variance in leadership (transactional and transformational) that could be attributed to the intervention of a certificated leadership program. Three ACSC classes were studied: ACSC Class 94-95, ACSC Class 95-96, and ACSC Class 96-97. Figure 2 gives an overview of the collection design for this study

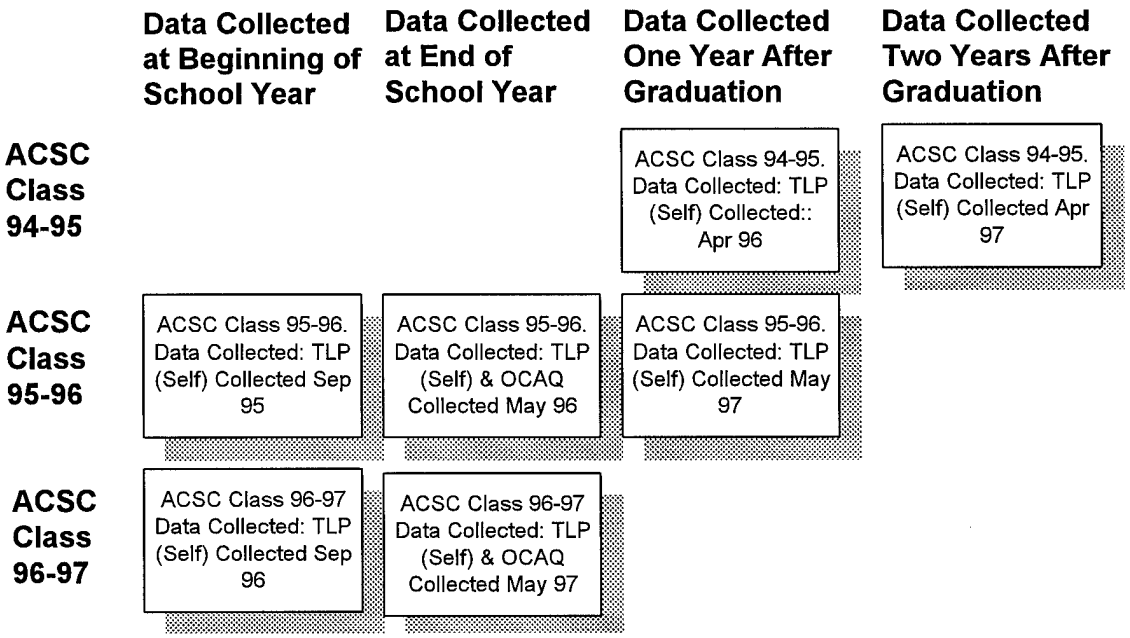

Figure 2. Overview of the Collection Design using the ACSC Leadership Database

using the established ACSC Leadership Database. Cover letters for the first, second, third

and fourth data collection points can be found at Attachments 3-7. Because the ACSC Leadership Database was initiated in April of 1996, a time sequence design (Campbell & Stanley, 1963) was not possible. This led to the use of a recurrent institutional cycle design (Campbell & Stanley, 1963) as the best fit for an existing database in a academic setting.

The recurrent institutional cycle design was originally used in an investigation of the effects of one year's officer and pilot training upon the attitudes toward superiors and subordinates and leadership functions of a group of Air Force cadets in the process of completing a 14-month training cycle (Campbell & McCormack, 1957). The design deals with the restrictions of not being able to divide the sample into two, thus providing a control group. In the recurrent institutional cycle design, each subsequent group or class over time is used as a control for the other groups. An idealized form of the design is shown in Figure 3. The recurrent institutional cycle design is best suited in a school situation lacking a control group where the pre-test, postest and subsequent tests are administrated at the same

Class A	X	O_1		
Class B		O_2	X	O_3
Class C			O_4	X O_5

Figure 3. Idealized Form of the Recurrent Institutional Cycle Design

time in the program for class or year group. By comparison of scores taken at the same time and point of instruction, comparisons between classes or year groups can be made. The weakness of the design where O_2 has a greater N than O_3 can be avoided by

identifying responses by individual and eliminating responses of individuals not included in O_3 (Campbell & Stanley, 1963).

Design Charts

Analysis of the data primarily involved comparisons of TLP scores (transformational and transactional) obtained prior to the intervention (the ACSC Leadership Program) with scores obtained immediately after the intervention and one year after. Specific analysis of the data is outlined in Figure 4 through Figure 7.

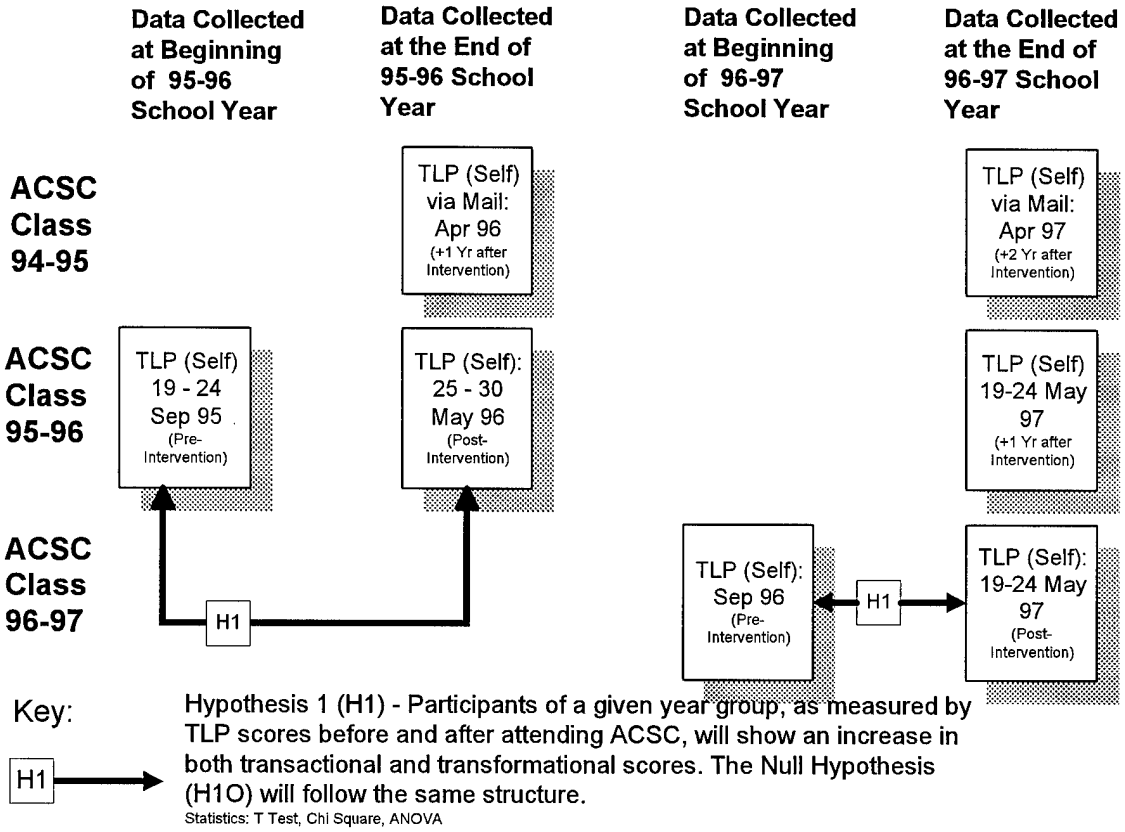

Figure 4. Comparison of Self TLP Scores Before and After the Intervention

Figure 4 shows the comparison of ACSC classes before and after the intervention of attending the leadership program supporting Hypothesis 1 and the Null Hypothesis. Before and after comparisons between same classes were made as indicated by lines H1.

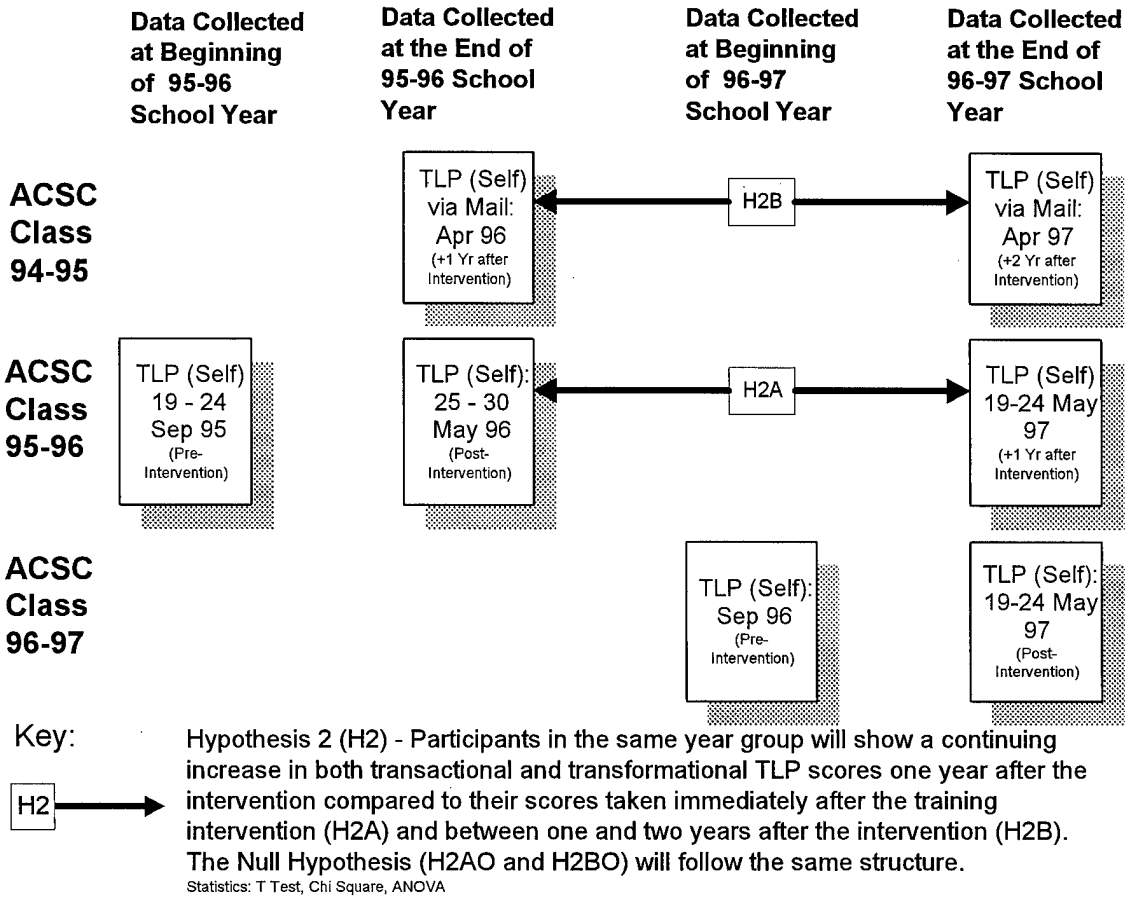

Figure 5. Comparison of TLP Scores One Year After the Intervention Compared to Scores Taken Immediately After the Training Intervention and Between One and Two Years After the Intervention

Figure 5 shows the comparison of TLP scores one year after the intervention for ACSC Class 95-96 (H2A) and between one and two years after the intervention (H2B) for ACSC Class 95-96. There will be a continuing increase in TLP scores in both classes. Analysis of the Null Hypothesis (H2AO and H2BO) followed the same structure.

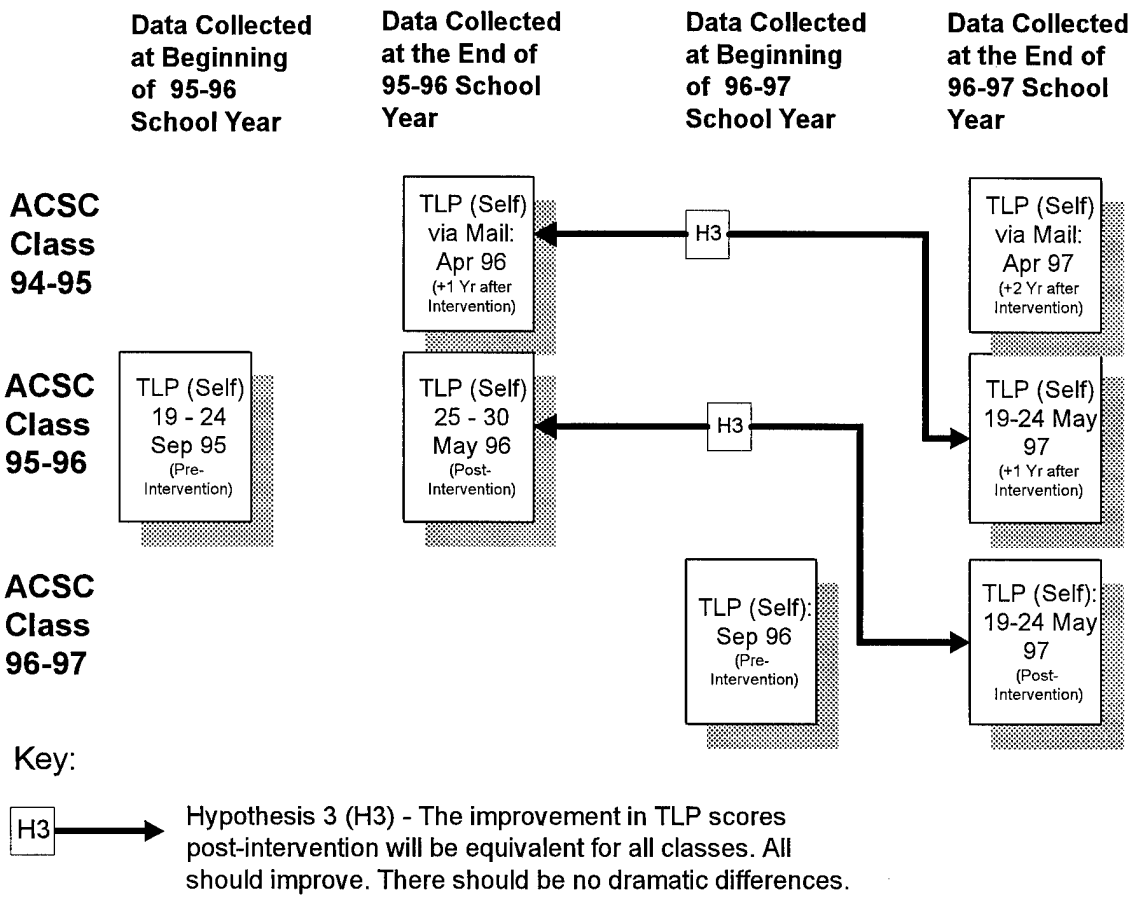

Figure 6: Comparisons Between Year Groups Testing for TLP (Self) Differences

Figure 6 shows the comparisons between year groups testing for pre- and post-intervention TLP (Self) differences. The improvement pre to post in TLP scores for the 94-95 class will be the same as for the 95-96 class. All should improve. There should not be dramatic differences because both classes are selected the same way and go through the same program.

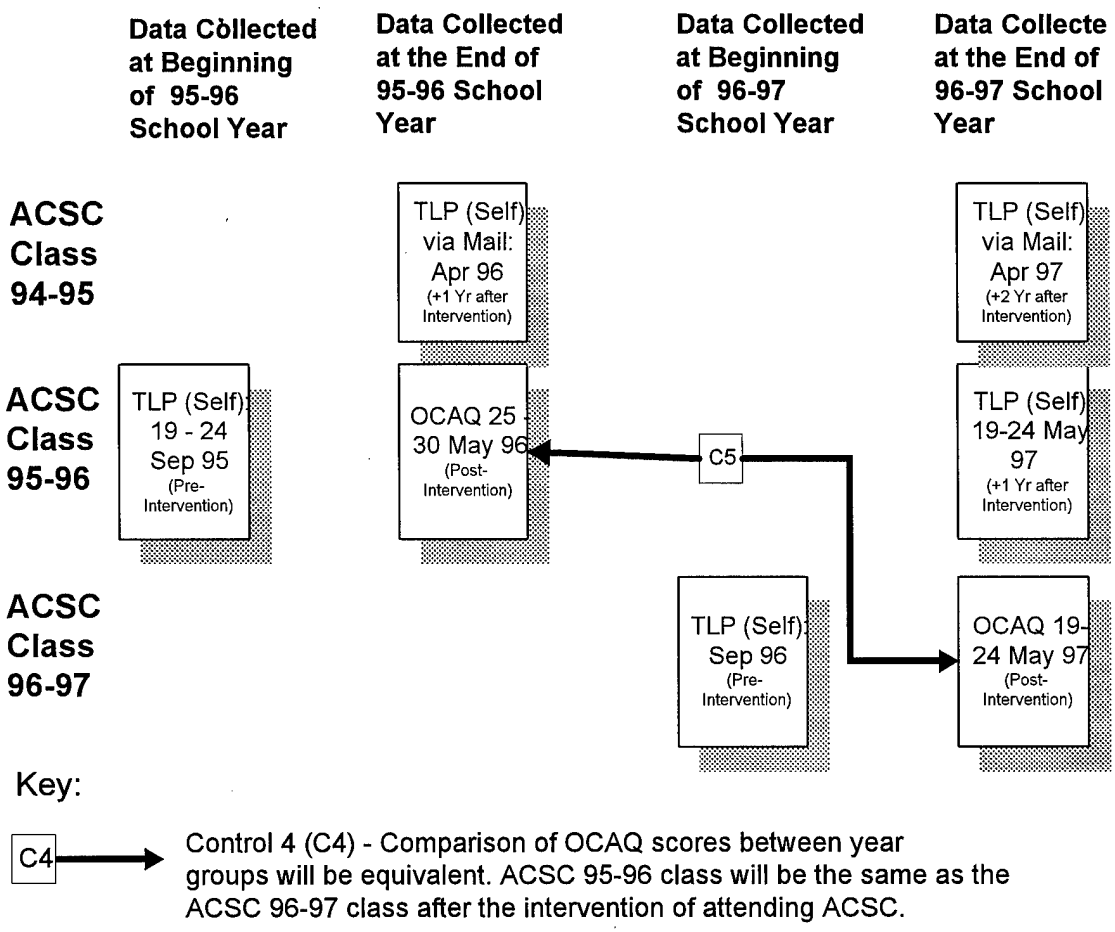

Figure 7: Control Comparison Between Year Groups Testing for Equivalency

Figure 7 shows the control comparison of OCAQ scores between year groups testing for equivalence. That being, is the ACSC 95-96 class the same as the ACSC 96-97 class after the intervention of attending ACSC?

Data Analysis and Presentation

Systat 5.0 (1992), Systat 6.0 (1996) and SPSS 6.1 (1995) were the statistical software programs used for the analysis. Significance was set at the .05 level. Independent and paired *t*-tests were used to analyze the effects of leadership training on the participants to determine how much variance in leadership behaviors and characteristics could be attributed to the leadership training. Paired *t*-tests were used to assess changes in individuals' responses over the period of the study (within the same sample group). Independent *t*-tests were used both to compare scores of different samples and to compare overall changes, over time, for the same sample. Independent *t*-tests were used between different samples because the data were not paired. Independent *t*-tests were used to compare responses from the same sample at different times because attrition reduced the sample size on follow-up and made pairwise comparisons for the complete sample impossible.

To test for internal reliability, a Cronbach's α statistical analysis (Cronbach & Furby, 1990) was used. To test for test-retest reliability, a Pearson *r* was used (Linton and Gallo, 1975; McCall, 1986).

Factor analysis was used because of its ability to show reliability, validity, fit and appropriateness in the way that the instrument items group into their respective scales. Additionally, factor analysis was used to determine whether gamma change - changes in the structure of the constructs - had occurred (Thompson & Hunt 1996; Golembiewski et al., 1976).

Alpha change involves a variation in the level of some existential state, given a constantly calibrated measuring instrument related to a constant conceptual domain (Golembiewski et al., 1976). In other words, the individual learns what he or she is taught and only what he or she is taught. According to Golembiewski et al., alpha change is identified by first determining that neither gamma or beta change has occurred. If neither gamma nor beta change has occurred yet there are differences (i.e., increases) from the pretest to the postest, alpha change can be said to have occurred.

Beta change involves a variation in the level of some existential state which has been complicated by the fact that some intervals of the measurement continuum associated with a constant conceptual domain have been recalibrated (Golembiewski et al., 1976). For example, if the individual learns not only what he or she is taught but can see that there is much more out there to learn, to such an extent that their context of the subject has changed, we can say that beta change has occurred. Interestingly, Golembiewski et al. state that with beta change, overall scores may actually decrease because the individual is relating more into the question than is asked, reading into the question so to speak. Beta change is identified by first determining that gamma change has not occurred, then looking for differences (i.e., increases and/or decreases) between pretest and postest where the variance of responses has increased. An illustration is when a subject rates a certain behavior as a "2" (on Likert-type scale) at Time 1 and the identical behavior under the same conditions as a "3" at Time 2. Beta change is the most difficult of the three types of change to identify.

Gamma change involves a redefinition or reconceptualization of some domain, a major change in the perspective or frame of reference within which phenomena are perceived and classified, in what is taken to be relevant in some slice of reality (Golembiewski et al., 1976).). For example, if as part of an organization's performance-evaluation program, managers are required to evaluate the program on "leadership," it would be important for this construct to be interpreted similarly by all raters. However if the participants redefine their schema or construct so that pretest and postest comparisons show that what was being evaluated is now being looked at in an entirely new way, gamma change has occurred.

Gamma change can be detected through comparison of factor structures over time. Low congruence between before and after factor analysis structures, whatever the mean differences in items, implies gamma change (Golembiewski et al., 1976). In this study, we assessed gamma change via a group level measure. A high congruence between pretest and postest factor structures would indicate that gamma change has not occurred, whereas a low congruence between the two would suggest that gamma change has occurred. Gamma change is the easiest of the three types of change to identify because the indicators are so dramatic.

Summary

This chapter details the methodology used to study the relationship between leadership training at ACSC and subsequent changes in individuals' leadership behaviors. The study took a quantitative approach using Campbell and Stanley's (1963) recurrent institutional cycle design based on the nature of the research questions and the absence of

empirical data in this area. Instruments used included The Leadership Profile (Rosenbach, sashkin, & Harburg, 1996; Sashkin, 1994, 1996b) and the Organizational Culture Assessment Questionnaire (Sashkin, 1990c, 1990d).

The site selected was Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. ACSC is a certificated, ten-month leadership school central to the Air Force's leadership development. The total sample population was U. S. military officers attending ACSC in academic years 1995 (n=590) , 1996 (n=587), and 1997 (n=592). The researcher received individual responses that varied according collection point (beginning and ending of each academic year and follow-up years). A copy of the list of changes made to the ACSC curriculum by the transformational leader in 1992, (prior to the start of the study) can be found at Attachment 8. The ACSC Curriculum Guide which explains the program in detail can be found at Attachment 9.

This chapter also reviewed reliability and validity criteria, the research design and procedure, and data analysis and collection. The results of the current research are discussed in Chapter 4.

CHAPTER 4: RESULTS

Overview

This chapter presents the statistical analysis of the data and the results regarding the three hypotheses and one control tested. The results of this study are organized into five sections. The first section summarizes the tested hypotheses and control. The second section reviews validity and reliability of the primary instrument, The Leadership Profile (TLP). The third section presents results of the demographic data analyses and comparison of classes. The fourth section provides detailed results by individual hypothesis and control. A summary of the detailed analysis and key findings concludes the chapter.

This research explored the effects of a leadership training program, comparing pre- and post-training scores of trainees on Sashkin's TLP assessment instrument. The study used a longitudinal database to examine three graduated classes at Air University's Air Command and Staff College (ACSC). Both immediate and delayed effects of training a number of specific measures of leadership style were examined. The analysis also assessed whether individuals completing a U.S. Air Force certificated leadership school showed changes in the ways they constructed the concept of leadership, commonly called "gamma change" (Golembiewski et al., 1976).

Summary Results of Analysis

This section presents the results for each of the three hypotheses. An overview of the hypotheses and their results is found in Table 6.

Table 6

Results of Analysis Overview

Hypotheses	Description	Results
H1	Participants in the same year group, as measured by TLP scores before and after attending ACSC, will show an increase in both transactional and transformational scores.	Hypothesis supported. See below for details.
	• ACSC Class 95-96 pre-intervention compared with post-intervention will increase in both transactional and transformational TLP scores.	• Significant and as predicted for all three leadership categories. Hypothesis supported.
	• ACSC Class 96-97 pre-intervention compared with post-intervention will increase in both transactional and transformational TLP scores.	• Significant and as predicted for all three leadership categories. Hypothesis supported.

(table continues)

Hypotheses	Description	Results
H2	Participants in the same year group will show a continuing increase in both transactional and transformational TLP scores one year after the intervention, by comparing their scores taken immediately after the training intervention with scores taken one and two years after the intervention.	Hypothesis partially supported. See below for details.
	• ACSC Class 94-95 one year post-intervention scores compared with ACSC Class 94-95 two years post-intervention will show a significant increase in both transactional and transformational TLP scores.	• Significant and as predicted for transformational behavior scores. Not significant for transactional behavior scores and transformational characteristics scores. Hypothesis partially supported.
	• ACSC Class 95-96 post-intervention compared with ACSC Class 95-96 one year post-intervention will increase in both transactional and transformational TLP scores.	• Not significant for any of the three leadership categories. Null hypothesis cannot be rejected.

(table continues)

Hypotheses	Description	Results
H3	The improvement in TLP scores post-intervention will be equivalent for all classes.	Hypothesis supported. See below for details.
	• ACSC Class 94-95 one year post-intervention scores when compared with ACSC Class 95-96 one year post-intervention scores will show no significant difference in transactional and transformational TLP scores.	• Not significant for any of the three leadership categories. Hypothesis supported.
	• ACSC Class 95-96 post-intervention scores when compared with ACSC Class 96-97 post-intervention scores will show no significant difference in transactional and transformational TLP scores.	• Not significant for any of the three leadership categories. Hypothesis supported.
Control	• Test for equivalence of conditions. The ACSC 95-96 Class OCAQ scores will be the same as those of the ACSC 96-97 Class OCAQ scores, after the intervention of attending ACSC.	• Not equivalent. Significant differences in OCAQ scores exist between ACSC Class 95-96 and ACSC Class 96-97.

Reliability/Validity of the Instrument

ACSC Class 94-95

TLP Internal Validity

Cronbach's α (Cronbach & Furby, 1990) for Class 94-95 in Table 7 showed good to excellent item-scale reliabilities. As with all ACSC classes, Scale 8, with α's of .213 and .143, scored low. Note also that Sashkin (1996b) argues that this is due to the structure of Scale 8 which is actually composed of two factorially independent sub-scales (see discussion in Chapter Three). Cronbach's α scale 8 sub-scales are reported in

Appendix E, Table 10 and support Sashkin's position concerning scale 8. TLP data collected after the intervention scored .143, the second lowest score yet recorded for Scale 8. Also Scale 10 (Principle-Centered Leadership) scored somewhat lower than past TLP samples (Appendix E, Table 10).

Table 7

Cronbach's α for ACSC Class 94-95

	Cronbach's α		
	I	II	III
Scale 1: Capable Management	.769	.747	.822
Scale 2: Reward Equity	.801	.842	.890
Scale 3: Communication Leadership	.647	.681	.800
Scale 4: Credible Leadership (trust)	.857	.876	.892
Scale 5: Caring Leadership (respect)	.764	.807	.900
Scale 6: Creative Leadership (creating empowering opportunities)	.804	.817	.844
Scale 7: Confident Leadership (self-efficacy/internal locus of control)	.764	.729	.747
Scale 8: Follower-Centered Leadership (power need and direction)	.213	.143	.366
Scale 9: Visionary Leadership	.562	.502	.568
Scale 10: Principle-Centered Leadership (culture building)	.596	.533	.714
Total of all Scales	.934	.939	♣

I: TLP Data collected one year after intervention (N=189)
II: TLP Data collected two years after intervention (N=161)
III: National "Big 8" accounting firm, *TLP-other* (N-149)
♣ Data Not Available

TLP Test-Retest Reliabilities Using Pearson *r*

To test for test-retest reliability a Pearson *r* was used to correlate the first administration of TLP (one year post-intervention) with the second administration (two years post-intervention) (Table 8). Comparisons were made using TLP categories which are compilations of the ten TLP scales. Significant correlations were found at the .01

level between all pre- and post- test categories (Table 8). Consequently, significant correlations exist not only between TLP categories comparing the first administration to the second but between the categories as well.

Table 8

Test-Retest Reliability Tests of the TLP Instrument: One Year Post-intervention and Two Years Post-intervention Administration Scores (ACSC Class 94-95)

	1 Year + Intervention Transactional Behavior Category (Scales 1 & 2)	1 Year + Intervention Transformational Behavior Category (Scales 3-6)	1 Year + Intervention Transformational Characteristics Category (Scales 7-10)	2 Year + Intervention Transactional Behavior Category (Scales 1 & 2)	2 Year + Intervention Transformational Behavior Category (Scales 3-6)
1 Year + Intervention Transactional Behavior Category (Scales 1 & 2)	1.000				
1 Year + Intervention Transformational Behavior Category (Scales 3-6)	0.842*	1.000			
1 Year + Intervention Transformational Characteristics Category (Scales 7-10)	0.733*	0.729*	1.000		
2 Year + Intervention Transactional Behavior Category (Scales 1 & 2)	0.485*†	0.396*	0.330*	1.000	
2 Year + Intervention Transformational Behavior Category (Scales 3-6)	0.334*	0.379*†	0.174	0.764*	1.000
2 Year + Intervention Transformational Characteristics Category (Scales 7-10)	0.365*	0.318*	0.402*†	0.717*	0.619*

N=155 One-tailed significance *$p < .01$

† One-tailed significance between same scales, different administration time

ACSC Class 95-96

TLP Internal Validity

Cronbach's α (Cronbach & Furby, 1990) was used to determine the inter-item scale reliabilities for each of the ten TLP scales. Results for Class 95-96 pre-intervention

showed good to excellent item-scale reliabilities (Table 9). The only exception is Scale 8, with α's of .334, .242 and .262. As stated previously, Sashkin (1996b) points out that this is due to the structure of Scale 8 which is actually composed of two factorially independent sub-scales (See discussion in Chapter 3). Cronbach's α scale 8 sub-scales are reported in Appendix E, Table 11 and support Sashkin's position concerning scale 8. Table 9 reports these results, along with a large-sample inter-item reliabilities reported by Sashkin (1996f) for comparison. Note that the results here represent self-only data while the additional results in Column IV are for both self- and other-data (Sashkin, 1996b).

Table 9

Cronbach's α for ACSC Class 95-96

	Cronbach's α			
	I	II	III	IV
Scale 1: Capable Management	.767	.807	.783	.822
Scale 2: Reward Equity	.801	.825	.815	.890
Scale 3: Communication Leadership	.668	.731	.654	.800
Scale 4: Credible Leadership (trust)	.785	.844	.865	.892
Scale 5: Caring Leadership (respect)	.771	.810	.836	.900
Scale 6: Creative Leadership (creating empowering opportunities)	.814	.836	.804	.844
Scale 7: Confident Leadership (self-efficacy/internal locus of control)	.740	.727	.768	.747
Scale 8: Follower-Centered Leadership (power need and direction)	.334	.242	.262	.366
Scale 9: Visionary Leadership	.589	.496	.468	.568
Scale 10: Principle-Centered Leadership (culture building)	.597	.636	.623	.714
Total of all Scales	.944	.948	.943	♣

I: TLP Data collected prior to intervention(N=505)
II: TLP Data collected after intervention(N=313)
III: TLP Data collected one year after intervention (N=182)
IV: National "Big 8" accounting firm, *TLP-other* (N-149)
♣ Data Not Available

TLP Test-Retest Reliability Using Pearson *r*: Pre- and Post-intervention

For test-retest reliability a Pearson *r* was used to correlate the first administration of TLP with the second administration (Table 10). Comparisons used TLP categories which are compilations of the ten TLP scales.

Table 10

Test-Retest Reliability Tests of the TLP Instrument: Pre- and Post-intervention Administration Score Correlations (ACSC Class 95-96)

	Pre-Intervention Transactional Behavior Category (Scales 1 & 2)	Pre-Intervention Transformational Behavior Category (Scales 3-6)	Pre-Intervention Transformational Characteristics Category (Scales 7-10)	Post-Intervention Transactional Behavior Category (Scales 1 & 2)	Post-Intervention Transformational Behavior Category (Scales 3-6)
Pre-Intervention Transactional Behavior Category (Scales 1 & 2)	1.000				
Pre-Intervention Transformational Behavior Category (Scales 3-6)	0.785*	1.000			
Pre-Intervention Transformational Characteristics Category (Scales 7-10)	0.728*	0.719*	1.000		
Post-Intervention Transactional Behavior Category (Scales 1 & 2)	0.533* †	0.440*	0.399*	1.000	
Post-Intervention Transformational Behavior Category (Scales 3-6)	0.493*	0.503* †	0.398*	0.823*	1.000
Post-Intervention Transformational Characteristics Category (Scales 7-10)	0.439*	0.436*	0.519* †	0.732*	0.799*

N=282 One-tailed significance *$p < .01$

† One-tailed significance between same scales, different administration time

Significant correlations were found at the .01 level between all pre- and post- test categories (Table 10). Consequently, significant correlations exist not only between TLP categories comparing the first administration to the second but significant correlations between the categories as well.

TLP Test-Retest Reliability Using Pearson *r*: Post- and One Year Post-intervention

For test-retest reliability a Pearson *r* was used to correlate TLP characteristics between post-intervention and one year post-intervention TLP scores for Class 95-96 (Table 11). Comparisons were used using TLP categories which are compilations of the ten TLP scales.

Significant correlations were found at the .01 level between all pre- and post- test categories (Table 11) with the exception of Post-intervention Transactional Category (Scales 1 & 2) to 1 Year + Intervention Transformational Behavior Category (Scales 3-6), Post-intervention Transformational Characteristics Category (Scales 7-10) to 1 Year + Intervention Transformational Behavior Category (Scales 3-6), Post-intervention Transformational Behavior Category (Scales 3-6) to 1 Year + Intervention Transformational Characteristics Category (Scales 7-10) and between 1 Year + Intervention Transformational Behavior Category (Scales 3-6) and 1 Year + Intervention Transformational Characteristics Category (Scales 7-10). Thus, significant correlations exist not only between TLP categories comparing the first administration to the second but between some categories as well.

Table 11

Test-Retest Reliability Tests of the TLP Instrument: Post-intervention and One Year Post-intervention Administration Score Correlations (ACSC Class 95-96)

	Post-Intervention Transactional Behavior Category (Scales 1 & 2)	Post-Intervention Transformational Behavior Category (Scales 3-6)	Post-Intervention Transformational Characteristics Category (Scales 7-10)	1 Year + Intervention Transactional Behavior Category (Scales 1 & 2)	1 Year + Intervention Transformational Behavior Category (Scales 3-6)
Post-Intervention Transactional Behavior Category (Scales 1 & 2)	1.000				
Post-Intervention Transformational Behavior Category (Scales 3-6)	0.855*	1.000			
Post-Intervention Transformational Characteristics Category (Scales 7-10)	0.767*	0.828*	1.000		
1 Year + Intervention Transactional Behavior Category (Scales 1 & 2)	0.460*†	0.542*	0.539*	1.000	
1 Year + Intervention Transformational Behavior Category (Scales 3-6)	0.173	0.217†	0.200	0.544*	1.000
1 Year + Intervention Transformational Characteristics Category (Scales 7-10)	0.428*	0.505	0.615*†	0.692*	0.571

N=145 One-tailed significance **p*< .01

† One-tailed significance between same scales, different administration time

ACSC Class 96-97

TLP Internal Validity

Cronbach's α (Cronbach & Furby 1990) for Class 96-97 in Table 12 showed good item-scale reliabilities. As with Class 95-96, Scale 8, with α's of .208 and .060, scored low. Note also that though Sashkin (1996b) argues that this is due to the structure of Scale 8,

Table 12

Cronbach's α for ACSC Class 96-97 Pre- / Post-intervention

	Cronbach α		
	I	II	III
Scale 1: Capable Management	.794	.802	.822
Scale 2: Reward Equity	.805	.822	.890
Scale 3: Communication Leadership	.682	.700	.800
Scale 4: Credible Leadership (trust)	.847	.838	.892
Scale 5: Caring Leadership (respect)	.790	.811	.900
Scale 6: Creative Leadership (creating empowering opportunities)	.795	.835	.844
Scale 7: Confident Leadership (self-efficacy/internal locus of control)	.768	.787	.747
Scale 8: Follower-Centered Leadership (power need and direction)	.208	.060	.366
Scale 9: Visionary Leadership	.419	.481	.568
Scale 10: Principle-Centered Leadership (culture building)	.572	.644	.714
Total of all Scales	.942	.942	♣

I: TLP Data collected prior to intervention (*N*= 341)
II: TLP Data collected after intervention (*N*=434)
III: National "Big 8" accounting firm, *TLP-other* (*N*=149)
♣ Data Not Available

which is actually composed of two factorially independent sub-scales, TLP data collected after the intervention scored .06, the lowest score yet recorded for Scale 8 (see discussion in Chapter Three). Cronbach's α scale 8 sub-scales are reported in Appendix E, Table 12

and support Sashkin's position concerning scale 8. Also, Scale 3 (Communication Leadership), Scale 9 (Visionary Leadership) and Scale 10 (Principle-Centered Leadership) scored lower than past TLP samples.

TLP Test-Retest Reliability Using Pearson *r*

To test for test-retest reliability a Pearson *r* was used to correlate the first administration of TLP with the second administration for Class 96-97 (Table 13).

Table 13

Test-Retest Reliability Tests of the TLP Instrument: Pre- and Post-intervention Administration Score Correlations (ACSC Class 96-97)

	Pre-Intervention Transactional Behavior Category (Scales 1 & 2)	Pre-Intervention Transformational Behavior Category (Scales 3-6)	Pre-Intervention Transformational Characteristics Category (Scales 7-10)	Post-Intervention Transactional Behavior Category (Scales 1 & 2)	Post-Intervention Transformational Behavior Category (Scales 3-6)
Pre-Intervention Transactional Behavior Category (Scales 1 & 2)	1.000				
Pre-Intervention Transformational Behavior Category (Scales 3-6)	0.664*	1.00			
Pre-Intervention Transformational Characteristics Category (Scales 7-10)	0.733*	0.635*	1.000		
Post-Intervention Transactional Behavior Category (Scales 1 & 2)	0.532*†	0.360*	0.401*	1.000	
Post-Intervention Transformational Behavior Category (Scales 3-6)	0.344*	0.231*†	0.285*	0.646*	1.000
Post-Intervention Transformational Characteristics Category (Scales 7-10)	0.360*	0.227*	0.490*†	0.717*	0.560*

N=228 One-tailed significance *$p < .01$

† One-tailed significance between same scales, different administration time

Comparisons used TLP categories which are compilations of the ten TLP scales.

As with Class 95-96, significant correlations were found at the .01 level between all pre- and post- test categories (Table 13). Consequently, significant correlations exist not only between TLP categories comparing the first administration to the second but significant correlations between the categories as well.

Demographic Analysis and Comparison of Classes

Demographic Analysis

Demographic crosstabulation analyses (Appendix D) were computed for all respondents in a given year-group by class collection period (i.e., pre-, post-, one year after the intervention or two years after the intervention). Demographic variables were examined to eliminate rival hypotheses and possible confounding effects.

Demographic data crosstabulation analyses indicated four significant relationships. Class 94-95 two years post-intervention (N=155) showed a significant relationship (p=.019) between marital status and transactional behavior, but with a nonsignificant likelihood ratio chi square (p=.679) (Appendix D, Table 2). Class 95-96 post-intervention (N=282) showed a significant relationship (p=.02) between military spouse and transactional behavior, but with a nonsignificant likelihood ratio chi square (p=.068) (Appendix D, Table 4). Class 95-96 one year post-intervention (N=154) showed a significant relationship (p=.00) between education and transactional behavior, but with a nonsignificant likelihood ratio chi square (p=.697) (Appendix D, Table 5). Finally, aeronautical rating and transformational behavior for Class 95-96 post-intervention (N=282) showed a significant relationship (p=.04) and a significant likelihood ratio chi square (p=.002) (Appendix D, Table 4). There were no other significant relationships between TLP scores and demographic characteristics for any other classes tested.

Further analysis of the relationship between aeronautical rating and transformational behavior for Class 95-96 post-intervention was conducted using independent t-tests. Aeronautical rating is made up of three subcategories: pilots,

navigators, and non-rated (not holding an aeronautical rating). Analysis of these three areas showed no significant difference in transformational behavior scores between pilots and navigators (Table 14) or between navigators and non-rated (Table 16). However,

Table 14

ACSC Class 95-96 Comparison of Pilots to Navigators Post-intervention TLP Transformational Behavior Scores

Group	*N*	Mean	Standard Deviation
Pilots	85	81.376	9.467
Navigators	37	84.568	10.492

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-1.590	62.7	0.117	-3.191	-7.203 to 0.821
Pooled	-1.656	120	0.100	-3.191	-7.007 to 0.625

Table 15

ACSC Class 95-96 Comparison of Pilots to Non-Rated Post-intervention TLP Transformational Behavior Scores

Group	*N*	Mean	Standard Deviation
Pilots	85	81.376	9.467
Non-Rated	160	84.800	7.626

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-2.875	142.9	0.005**	-3.424	-5.770 to 1.070
Pooled	-3.070	243	0.002**	-3.424	-5.620 to -1.227

** Significant at the .05 level

Table 16

ACSC Class 95-96 Comparison of Navigators to Non-Rated Post-intervention TLP Transformational Behavior Scores

Group	*N*	Mean	Standard Deviation
Navigators	37	84.568	10.492
Non-Rated	160	84.800	7.626

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-0.127	45.2	0.899	-0.232	-3.912 to 3.447
Pooled	-0.155	195	0.877	-0.232	-3.193 to 2.729

transformational behavior scores were significantly different between pilots and non-rated (Table 15). Thus, the difference found in the initial analysis appears due primarily to this pilot versus non-rated difference.

Comparison of Classes

To establish a baseline for the study showing that the two focal classes -- Class 95-96 and Class 96-97 -- were initially equivalent, independent *t*-tests were conducted comparing Class 95-96 pre-intervention scores and Class 96-97 pre-intervention scores for each of the three leadership categories of the TLP: transactional behavior (Table 17), transformational behavior (Table 18) and transformational characteristics (Table 19). A significant difference was found between Class 95-96 pre-intervention and Class 96-97 pre-intervention in the transformational characteristics category (Table 19).

Table 17

Independent *t*-test of ACSC Class 95-96 Pre-intervention, to ACSC Class 96-97 Pre-intervention, Transactional Behavior Category

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Pre-intervention	433	40.670	4.827
ACSC Class 96-97 Pre-intervention	277	40.336	7.747

Variance	*t*	df	*p*	Difference in Means	95% CI
Separate	0.642	413.8	0.521	0.334	-0.688 to 1.356
Pooled	0.708	708	0.479	0.334	-0.592 to 1.260

Table 18

Independent *t*-test of ACSC Class 95-96 Pre-intervention, to ACSC Class 96-97 Pre-intervention, Transformational Behavior Category

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Pre-intervention	433	82.938	8.003
ACSC Class 96-97 Pre-intervention	275	81.804	10.189

Variance	*t*	df	*p*	Difference in Means	95% CI
Separate	1.564	483.7	0.118	1.134	-0.290 to 2.558
Pooled	1.650	706	0.099	1.134	-0.216 to 2.484

Table 19

Independent *t*-test of ACSC Class 95-96 Pre-intervention, to ACSC Class 96-97 Pre-intervention, Transformational Characteristics Category

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Pre-intervention	433	75.388	7.201
ACSC Class 96-97 Pre-intervention	275	74.004	7.267

Variance	*t*	df	*p*	Difference in Means	95% CI
Separate	2.479	579.3	0.013**	1.384	0.288 to 2.481
Pooled	2.484	706	0.013**	1.384	0.290 to 2.478

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

An additional finding unique to the Class 94-95 sample was the inclusion of 36 unsolicited notes (twenty-five percent) returned with the completed questionnaires. All but two were positive and optimistic in that they viewed the problems that they were experiencing in their daily jobs as opportunities to improve and that these problems were expected. Additionally respondents went on to state that the new ACSC curriculum had been designed in response to these problems brought on by change. In every case the respondents identified themselves as change agents. These notes used the theory and jargon of the program to explain their interpretations of the problems they faced after attending the program thus showing an integration of the material presented at ACSC during their attendance.

Results of Hypothesis Testing

Hypothesis One

H1: Participants in the same year group, as measured by TLP scores before and after attending ACSC, will show an increase in both transactional and transformational scores.

The results of this analysis were significant and as predicted. Reliability and validly of the instrument were good to excellent. The hypothesis was tested using two data sets:

- ACSC Class 95-96 pre-intervention was compared with ACSC Class 95-96 post-intervention, with the prediction that there would be an increase in both transactional and transformational TLP scores.
- ACSC Class 96-97 pre-intervention was compared with ACSC Class 96-97 post-intervention with the prediction that there would be an increase in both transactional and transformational TLP scores.

ACSC Class 95-96 Pre-intervention and Post-intervention Differences

To compare means of Class 95-96 pre- to post-intervention, paired *t*-test were conducted. The results in Table 20 show that significant differences between mean scores were found for each of the TLP scales (pre- and post-) with the exception of Scale 8, Follower-Centered Leadership. Differences at the .01 level of significance occurred at Scale 1: Capable Management, Scale 2: Reward Equity, Scale 3: Communication Leadership, Scale 9: Visionary Leadership, and Scale 10: Principle-Centered Leadership. Differences at the .01 significance level were also found for all the combined scales of

Table 20

Paired *t*-tests of Pre-intervention and Post-intervention TLP Scores for ACSC Class 95-96

Scale	*N*	Mean	Mean Diff.	SD Dif	*df*	*t*	*p*
1: Capable Management	282	Pre: 20.223 Post: 20.652	-0.429	2.658	281	-2.711	0.007*
2: Reward Equity	282	Pre: 20.206 Post: 20.645	-0.440	2.545	281	-2.902	0.004*
3: Communication Leadership	282	Pre: 19.390 Post: 19.745	-0.355	2.674	281	-2.227	0.027*
4: Credible Leadership	282	Pre: 22.656 Post: 22.926	-0.270	2.295	281	-1.972	0.05**
5: Caring Leadership	282	Pre: 20.727 Post: 21.025	-0.298	2.510	281	-1.993	0.047**
6: Creative Leadership	282	Pre: 19.638 Post: 20.043	-0.401	2.692	281	-2.522	0.012**
7: Confident Leadership	282	Pre: 20.259 Post: 20.564	-0.305	2.549	281	-2.009	0.045**
8: Follower-Centered Leadership	282	Pre: 17.780 Post: 17.794	-0.014	2.634	281	-0.090	0.928
9: Visionary Leadership	282	Pre: 17.429 Post: 18.053	-0.624	2.615	281	-4.007	0.000*
10: Principle-Centered Leadership	282	Pre: 19.365 Post: 19.915	-0.550	2.634	281	-3.504	0.001*
Transactional Behavior (Scales 1-2)	282	Pre: 40.429 Post: 41.298	-0.869	4.668	281	-3.126	0.002*
Transformational Behavior (Scales 3-6)	282	Pre: 82.411 Post: 83.738	-1.326	8.111	281	-2.746	0.006*
Transformational Characteristics (Scales 7-10)	282	Pre: 74.833 Post: 76.326	-1.493	7.412	281	-3.382	0.001*
All Scales Combined	282	Pre: 197.67 Post: 201.36	-3.688	18.115	281	-3.419	0.001*

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

transactional behavior (Scales 1-2), transformational behavior (Scales 3-6), transformational characteristics (7-10), and All Scales Combined. Differences at the .05 level of significance were found for Scale 4: Credible Leadership, Scale 5: Caring Leadership, Scale 6: Creative Leadership, and Scale 7: Confident Leadership. Post-

intervention TLP scores were higher than pre-intervention TLP scores for all significant differences.

Tests for Gamma Change Using Factor Analysis

Data obtained from each TLP administration were factor analyzed, separately, to determine whether gamma change had occurred as a result of the intervention. Analysis of the samples used a varimax rotation with an eigenvalue of 1.00; the result is shown in Appendix C (pre-intervention) and (post-intervention). The solution (Table 21) consists of ten factors, which support but do not map precisely against the ten TLP scales. Sashkin (1996d) reviewed the factor structure in detail to establish construct validity support for the instrument. He concluded that large sample factor analysis demonstrated substantial support for the behavioral and personal character constructs being assessed. Factor analysis of the third sample collection, one year after the intervention, was not possible as its N of 182 was below the N=250 minimum. The concern here, however, is whether the factor structure identified using Class 95-96 pre-intervention data can be replicated in an analysis of the second set of data for Class 95-96 post-intervention. Table 21 looks at the two structures factor by factor.

Table 21 shows that the two factor structures are quite similar. Although the order of the factors differs somewhat, we see similar factors consisting of similar items from similar scales. Thus, most of the items from two scales, Scale 7 and Scale 9, representing leader self-efficacy and time-span of vision, respectively, are common to Factor 1 of the first TLP factor analysis and Factor 3 of the second. Factor 2 of the first analysis and Factor 1 of the second are identical, consisting of three items from Scale 5 (Caring

Table 21

Comparison of Factor Structures for ACSC Class 95-96

ACSC Class 95-96 Pre-intervention Factor Structure	ACSC Class 95-96 Post-intervention Factor Structure
Factor 1 Items: **7, 17, 27** 28, 38 **19, 39, 49** 40, 50	Factor 3 Items: **7, 17, 27, 37** 23, 43 **29, 39, 49**
Factor 2 Items: **15, 25, 35**	Factor 1 Items: **15, 25, 45**
Factor 3 Items: **8, 18**	Factor 5 Items: **8, 18**
Factor 4 Items: **4, 14, 24, 34, 44**	Factor 2 Items: **4, 14, 24, 44**
Factor 5 Items: **1, 11, 21, 31** **16, 36, 46**	Factor 4 Items: **1, 11, 21, 31, 41** 2, 12 **6, 16, 46**
Factor 6 Items: **37, 47**	Factor 6 Items: not interpretable
Factor 7 Items: not interpretable	Factor 7 Items: 28, 38, 48
Factor 8 Items: not interpretable	Factor 8 Items: not interpretable
Factor 9 Items: not interpretable	Factor 9 Items: not interpretable
Factor 10 Items: not interpretable	Factor 10 Items: not interpretable

Note: Bold type depicts factor/scale grouping

Leadership). The two items comprising the pro-social power aspect of leader power need (Scale 8) are common to Factor 3 of the first analysis and Factor 5 of the second. Most of the items on Scale 4 (Credible Leadership) are common to Factor 4 of the first analysis

and Factor 2 of the second. Finally, most items on Scale 1 (Capable Management) and Scale 6 (Creative leadership) are common to Factor 5 of the first analysis and Factor 4 of the second. Overall, seven of the ten TLP scales appear on parallel factors in the two analyses. Based on the similarity of the two factor structures, there is no evidence that gamma change occurred.

ACSC Class 96-97 Pre-intervention and Post-intervention Differences

To compare means of Class 96-97 pre- to post-intervention, paired *t*-tests were run on each of the TLP's three summed scales: transactional behavior, transformational behavior and transformational characteristics. Table 22 shows the results of pre- and post-intervention paired *t*-tests. Significant differences occurred between mean scores in all scales except Scale 4 (Credible Leadership), Scale 6 (Creative Leadership) and Scale 8 (Follower-Centered Leadership). A difference at the .05 significance level was found for Scale 3 (Communication Leadership) and the combined scale of Transformational Behavior (Scales 3-6). Differences at the .01 level of significance occurred for Scale 1 (Capable Management), Scale 2 (Reward Equity), Scale 5 (Caring Leadership), Scale 7 (Confident Leadership), Scale 9 (Visionary Leadership), and Scale 10 (Principle-Centered Leadership) as well as the combined scales of Transactional Behavior (Scales 1-2), Transformational Characteristics (Scales 7-10) and All Scales Combined (Scales 1-10). In all cases of significant difference, post-intervention TLP scores were higher than pre-intervention TLP scores.

Table 22

Paired *t*-tests of Pre-intervention and Post-intervention TLP Scores for ACSC Class 96-97

Scale	N	Mean	Mean Diff.	SD Dif	*df*	*t*	*p*
1: Capable Management	233	Pre: 20.094 Post: 20.901	-0.807	2.514	232	-4.899	0.000*
2: Reward Equity	233	Pre: 19.116 Post: 20.661	-1.545	2.760	232	-8.544	0.000*
3: Communication Leadership	233	Pre: 19.116 Post: 20.073	-0.957	7.078	232	-2.064	0.040**
4: Credible Leadership	233	Pre: 22.429 Post: 22.592	-0.163	2.754	232	-0.904	0.367
5: Caring Leadership	233	Pre: 20.575 Post: 21.180	-0.605	2.751	232	-3.358	0.001*
6: Creative Leadership	233	Pre: 19.880 Post: 20.262	-0.382	7.060	232	-0.826	0.410
7: Confident Leadership	233	Pre: 19.944 Post: 20.468	-0.524	2.491	232	-3.208	0.002*
8: Follower-Centered Leadership	233	Pre: 17.837 Post: 17.730	0.107	2.531	232	0.647	0.518
9: Visionary Leadership	233	Pre: 17.146 Post: 17.627	-0.481	2.263	232	-3.242	0.001*
10: Principle-Centered Leadership	233	Pre: 19.240 Post: 19.807	0.567	2.721	232	-3.179	0.002*
Transactional Behavior (Scales 1-2)	233	Pre: 40.064 Post: 41.562	-1.498	4.522	232	-5.056	0.000*
Transformational Behavior (Scales 3-6)	233	Pre: 82.000 Post: 84.107	-2.107	12.671	232	-2.539	0.012**
Transformational Characteristics (Scales 7-10)	233	Pre: 74.167 Post: 75.631	-1.464	7.133	232	-3.132	0.002*
All Scales Combined	233	Pre: 196.232 Post: 201.300	-5.069	20.826	232	-3.715	0.000*

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

Tests for Gamma Change Using Factor Analysis.

Data obtained from each TLP administration were factor analyzed, separately, to determine whether gamma change had occurred during the intervention (Table 23).

Analysis of the first sample (N=341) and of the second (N=354) used a varimax rotation with an eigenvalue of 1.00. The result is shown in Appendix C.

Table 23

Comparison of Factor Structures for ACSC Class 96-97

ACSC Class 96-97 Pre-intervention Factor Structure	ACSC Class 96-97 Post-intervention Factor Structure
Factor 3 Items: **4, 14, 24, 34, 44**	Factor 3 Items: **4, 14, 24, 34, 44**
Factor 8 Items: **28, 38**	Factor 8 Items: **28, 38**
Factor 4 Items: **18, 48**	Factor 2 Items: **18, 8**
Factor 6 Items: **7, 17, 27, 47** 50	Factor 10 Items: **7, 17, 27** 23
Factor 2 Items: **15, 25, 45** 2, 30, 33	Factor 1 Items: **15, 25** 33
(No equivalent factor)	Factor 6 Items: **5, 35** 3
Factor 9 Items: **1, 21**	Factor 4 Items: **1, 11, 21** **2, 12** 6
Factor 5 Items: **2, 12, 22, 32**	Factor 5 Items: **31, 41 32, 42** **30, 40 29, 39** **16, 36**
Factor 1 Items: **29, 39, 49** 40, 41, 42,43,	(No equivalent factor)
Factor 7 Items: not interpretable	Factor 7 Items: not interpretable
Factor 10 Items: not interpretable	Factor 9 Items: not interpretable

Note: Bold type depicts factor/scale grouping

The solution consists of ten factors, which support but do not map precisely against the ten TLP scales. Table 23 looks at the two structures factor by factor. Table 23 shows that although the order of the factors differs somewhat, we see similar factors consisting of similar items from similar scales.

Factor 3 in both analyses is identical in representing Scale 4 (Credible Leadership), which deals with trust in the leader keeping commitments and promises as well as actions consistent with words. Factor 8 in both analyses is identical in representing Scale 8 (Follower-Centered Leadership), dealing with the degree to which the leader sees followers as empowered partners. Factor 4 (pre-intervention) and Factor 2 (post-intervention) also support Scale 8 (Follower-Centered Leadership). Factor 6 (pre-intervention) corresponds to Factor 10 (post-intervention) representing Scale 7 (Confident Leadership), dealing with the leader's self-confidence and ability to instill the same in others.

Factor 2 (pre-intervention), however, representing Scale 5 (Caring Leadership) is fragmented between Factors 1 and 6 (post-intervention). Scale 5 measures the leader's respect and caring for others. Factor 9 (pre-intervention) loosely relates to Factor 4 (post-intervention) in Scale 1 (Capable Management), representing the knowledge and skills needed to accomplish the task.

Post-intervention Scale 1 groupings were much stronger than pre-intervention. Factor 5 (post-intervention) representing Scale 2 (Reward Equity) or the degree that leaders make clear their goals and expectations as well as delivering on those promises for good performance, was strongly supported but split between Factor 4 and Factor 5 of

the post-intervention. Factor 1 (pre-intervention) and Factor 5 (post-intervention) loosely support Scale 9 (Visionary Leadership). The strong showing of Scale 9 can be attributed to ACSC's curriculum which contains processes for long term planning. Factors 7 and 10 (pre-intervention) and Factors 7 and 9 (post-intervention) were not interpretable.

Hypothesis Two

H2: Participants in the same year group will show a continuing increase in both transactional and transformational TLP scores one year after the intervention compared with their scores taken immediately after the training intervention (H2A) and between one and two years after the intervention (H2B).

H2O: Participants in the same year groups will not show any changes in TLP scores (transactional and transformational) one year after the intervention compared with their scores taken immediately after the training intervention and between one and two years after the intervention.

The results of this analysis were significant. Some differences were as predicted and others contrary to prediction. Reliability and validly of the instrument were good to excellent. The hypothesis was tested using two data sets:

- ACSC Class 94-95 one year post-intervention was compared with ACSC Class 94-95 two years post-intervention with the prediction that there would be an increase in both transactional and transformational TLP scores.
- ACSC Class 95-96 post-intervention was compared with ACSC Class 95-96 one year post-intervention with the prediction that there would be an increase in both transactional and transformational TLP scores.

ACSC Class 94-95 One Year Post-intervention and Two Years Post-intervention Differences

Table 24 shows the results of pre- and post-training paired *t*-tests. There was a significant difference between mean scores at the .05 level for Scale 2 (Reward Equity).

Differences at the .01 level of significance occurred at Scale 3 (Communication Leadership) and for the combined scales of transformational behavior (Scales 3-6) and

Table 24

Paired *t*-tests of One Year Post-intervention and Two Years Post-intervention TLP Scores for ACSC Class 94-95

Scale	*N*	Mean		Mean Diff.	SD Dif	*df*	*t*	*p*<
1: Capable Management	155	1Yr Post: 2Yr Post:	20.187 20.439	-0.252	2.615	154	-1.198	0.233
2: Reward Equity	155	1Yr Post: 2Yr Post:	19.690 20.194	-0.503	2.707	154	-2.314	0.022**
3: Communication Leadership	155	1Yr Post: 2Yr Post:	19.265 22.716	-3.452	3.570	154	-12.038	0.000*
4: Credible Leadership	155	1Yr Post: 2Yr Post:	22.806 22.716	0.090	3.379	154	0.333	0.740
5: Caring Leadership	155	1Yr Post: 2Yr Post:	20.981 21.239	-0.258	2.916	154	-1.102	0.272
6: Creative Leadership	155	1Yr Post: 2Yr Post:	20.013 20.303	-0.290	2.805	154	-1.288	0.200
7: Confident Leadership	155	1Yr Post: 2Yr Post:	20.187 20.458	-0.271	2.818	154	-1.197	0.233
8: Follower-Centered Leadership	155	1Yr Post: 2Yr Post:	17.748 18.135	-0.387	2.686	154	-1.794	0.075
9: Visionary Leadership	155	1Yr Post: 2Yr Post:	17.581 17.710	-0.129	2.583	154	-0.622	0.535
10: Principle-Centered Leadership	155	1Yr Post: 2Yr Post:	19.832 19.981	-0.148	2.588	154	-0.714	0.476
Transactional Behavior (Scales 1-2)	155	1Yr Post: 2Yr Post:	39.877 40.632	-0.755	4.817	154	-1.951	0.053
Transformational Behavior (Scales 3-6)	155	1Yr Post: 2Yr Post:	83.065 87.168	-4.103	8.495	154	-6.013	0.000*
Transformational Characteristics (Scales 7-10)	155	1Yr Post: 2Yr Post:	75.348 76.284	-0.935	7.913	154	-1.472	0.143
All Scales Combined	155	1Yr Post: 2Yr Post:	198.290 204.084	-5.794	19.175	154	-3.762	0.000*

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

All Scales Combined (Scales 1-10). TLP scores were higher two years post-intervention compared with one year post-intervention for the significant differences. No other significant differences were found.

Tests for Gamma Change Using Factor Analysis.

The data obtained from the Class 94-95 TLP administrations could not be analyzed for gamma change due to inadequate sample size. Class 94-95 one year post-intervention TLP (N=189) and Class 94-95 two years post-intervention TLP (N=161) were below the N=250 minimum.

ACSC Class 95-96 Post-intervention and One Year Post-intervention Differences

To compare means in the of Class 95-96 post-intervention with one year post-intervention, independent t-tests were run on each of the TLP's three summed scales.

Table 25 shows the results of paired t-tests comparing Class 95-96 TLP scores post-intervention and one year post-intervention. Table 25 shows that no significant differences were found, both for the individual scales or the four combinations of scales.

Table 25

Paired *t*-tests of Post-intervention and One Year Post-intervention TLP Scores for ACSC Class 95-96

Scale	*N*	Mean	Mean Diff.	SD Dif	*df*	*t*	*p*<
1: Capable Management	116	Post: 20.509 1 Yr Post: 20.095	0.414	3.268	115	1.364	0.175
2: Reward Equity	116	Post: 20.448 1 Yr Post: 19.940	0.509	2.824	115	1.940	0.055
3: Communication Leadership	116	Post: 19.672 1 Yr Post: 20.724	-1.052	10.038	115	-1.128	0.261
4: Credible Leadership	116	Post: 23.043 1 Yr Post: 22.914	0.129	2.390	115	0.583	0.561
5: Caring Leadership	116	Post: 20.871 1 Yr Post: 20.741	0.129	2.839	115	0.491	0.625
6: Creative Leadership	116	Post: 19.750 1 Yr Post: 20.060	-0.310	2.774	115	-1.205	0.231
7: Confident Leadership	116	Post: 20.661 1 Yr Post: 26.543	0.147	2.687	115	0.587	0.558
8: Follower-Centered Leadership	116	Post: 18.009 1 Yr Post: 18.207	-0.198	2.231	115	-0.957	0.340
9: Visionary Leadership	116	Post: 18.034 1 Yr Post: 17.672	0.362	2.083	115	1.872	0.064
10: Principle-Centered Leadership	116	Post: 19.793 1 Yr Post: 19.974	-0.181	2.539	115	-0.768	0.444
Transactional Behavior (Scales 1-2)	116	Post: 40.957 1 Yr Post: 40.034	0.922	5.341	115	1.860	0.065
Transformational Behavior (Scales 3-6)	116	Post: 83.336 1 Yr Post: 84.440	-1.103	13.788	115	-0.862	0.391
Transformational Characteristics (Scales 7-10)	116	Post: 76.526 1 Yr Post: 76.397	0.129	7.053	115	0.197	0.844
All Scales Combined	116	Post: 200.819 1 Yr Post: 200.871	0.052	22.526	115	-0.025	0.980

Tests for Gamma Change Using Factor Analysis.

Data obtained from the Class 95-96 post-intervention TLP administration were previously analyzed (Table 21) to determine whether gamma change had occurred during

the intervention. Factor 3 showed strong indicators of Scale 7 (Confident Leadership; items 7, 17, 27, 37) as well Scale 9 (Visionary Leadership; items 29, 39, 49). Factor 1 items centered on Scale 5 (Caring Leadership; items 15, 25, 45), and Factor 5 was composed of two questions from Scale 8 (Follower-Centered Leadership; items 8, 18). Factor 2 was made up of four items from Scale 4 (Credible Leadership; items 4, 14, 24, 44) and was identical to Factor 4 of the first collection of data. Factor 4 was split showing strong support for Scale 1 (Capable Management; items 1, 11, 21, 31, 41) and Scale 6 (Creative Leadership; items 6, 16, 46). Factor 4 of the one year post-intervention collection showed the same support for Scales 1 (Capable Management) and Scale 6 (Creative Leadership). Based on the similarity of the two factor structures, there is no evidence that gamma change occurred.

Data obtained from Class 95-96 one year post-intervention TLP scores could not be factor analyzed, as the sample (N=161) was below the N=250 minimum.

Hypothesis Three

H3: The improvement in TLP scores will be equivalent for all classes. All should improve. There should not be dramatic differences among classes.

Results of this analysis were partially significant for one class and not for the other. Some differences were as predicted and others contrary to prediction. Reliability and validity of the instrument were good to excellent when available. The hypothesis was tested in two parts, as stated below:

- ACSC Class 94-95 one year post-intervention compared with ACSC Class 95-96 one year post-intervention will show that both increased in both transactional and transformational TLP scores, and there is no difference between them.
- ACSC Class 95-96 post-intervention compared with ACSC Class 96-97 post-intervention will show that both increased in both transactional and transformational TLP scores, and there is no difference between them.

ACSC Class 94-95 One Year Post-intervention and ACSC Class 95-96 One Year Post-intervention Differences

To compare means of Class 94-95 one year post-intervention with Class 95-96 one year post-intervention, independent *t*-tests were run on each of the TLP's three summed scales. Tables 26, 27 and 28 show results of the independent *t*-test of Class 94-95 one year after the intervention compared with Class 95-96 one year after the intervention, transactional behavior category, transformational behavior category and transformational characteristics, respectively. Analysis showed no significant difference between means in all three categories.

Table 26

Independent *t*-test of ACSC Class 94-95 One Year Post-intervention to ACSC Class 95-96 One Year Post-intervention, Transactional Behavior Category

Group	*N*	Mean	Standard Deviation
ACSC Class 94-95 One Year Post-intervention	187	40.059	4.398
ACSC Class 95-96 One Year Post-intervention	154	40.442	5.136

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-0.730	302.8	0.466	-0.383	-1.414 to 0.649
Pooled	0.741	339	0.459	-0.383	-1.398 to 0.633

Table 27

Independent *t*-test of ACSC Class 94-95 One Year Post-intervention to ACSC Class 95-96 One Year Post-intervention, Transformational Behavior Category

Group	*N*	Mean	Standard Deviation
ACSC Class 94-95 One Year Post-intervention	187	83.273	7.658
ACSC Class 95-96 One Year Post-intervention	154	84.468	11.677

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-1.091	254.3	0.276	-1.195	-3.351 to 0.962
Pooled	-1.134	339	0.258	-1.195	-3.267 to 0.877

Table 28

Independent *t*-test of ACSC Class 94-95 One Year Post-intervention to ACSC Class 95-96 One Year Post-intervention, Transformational Characteristics Category

Group	*N*	Mean	Standard Deviation
ACSC Class 94-95 One Year Post-intervention	185	75.395	7.372
ACSC Class 95-96 One Year Post-intervention	282	76.326	7.870

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-1.300	411.4	0.194	-0.932	-2.340/0.477
Pooled	-1.283	465	0.200	-0.932	-2.359/0.496

Tests for Gamma Change Using Factor Analysis.

As previously noted. the data obtained from the Class 94-95 TLP administrations could not be analyzed for gamma change due to inadequate sample size. Class 94-95 one year post-intervention TLP (*N*=189) and Class 95-96 one year post-intervention TLP (*N*=161) were below the *N*=250 minimum.

ACSC Class 95-96 Post-intervention and ACSC Class 96-97 Post-intervention Differences

To compare means in the Class 95-96 post-intervention with Class 96-97 post-intervention, independent *t*-tests were run on each of the TLP's three summed scales. Tables 29, 30 and 31 show results of the independent *t*-test of Class 95-96 post-intervention compared to Class 96-97 post-intervention, transactional behavior category, transformational behavior category and transformational characteristics, respectively. Analysis showed no significant difference between means in all three categories of the Class 95-96 post-intervention to Class 96-97 post-intervention comparison.

Table 29

Independent *t*-test of ACSC Class 95-96 Post-intervention to ACSC Class 96-97 Post-intervention, Transactional Behavior Category

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Post-intervention	282	41.298	5.034
ACSC Class 96-97 Post-intervention	419	41.852	4.350

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-1.508	542.4	0.132	-0.554	-1.276 to 0.168
Pooled	-1.551	699	0.121	-0.554	-1.255 to 0.147

Table 30

Independent *t*-test of ACSC Class 95-96 Post-intervention to ACSC Class 96-97 Post-intervention, Transformational Behavior Category

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Post-intervention	282	83.738	8.730
ACSC Class 96-97 Post-intervention	419	84.279	9.249

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-0.786	625.8	0.432	-0.542	-1.894 to 0.811
Pooled	-0.778	699	0.437	-0.542	-1.909 to 0.826

Table 31

Independent *t*-test of ACSC Class 95-96 Post-intervention to ACSC Class 96-97 Post-intervention, Transformational Characteristics Category

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Post-intervention	282	76.326	7.870
ACSC Class 96-97 Post-intervention	420	76.643	13.244

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-0.397	690.7	0.692	-0.317	-1.884 to 1.251
Pooled	-0.361	700	0.718	-0.317	-2.039 to 1.406

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

Tests for Gamma Change Using Factor Analysis.

Data obtained from Class 94-95 and Class 95-96 one year post-intervention could not be analyzed, as Class 94-95 one year post-intervention (*N*=189) and Class 95-96 one year post-intervention (*N*=161) were below the *N*=250 minimum.

Data obtained from the Class 95-96 post-intervention TLP administration was previously factor analyzed (Table 21) as was data obtained from the Class 96-97 post-intervention TLP administration (Table 23). Comparisons of these two post-intervention analyses (Table 32) showed strong similarities primarily in:

- Factor 2 (ACSC Class 95-96 post-intervention) and Factor 3 (ACSC Class 96-97 post-intervention) Scale 4: Credible Leadership measuring trust.
- Factor 7 (ACSC Class 95-96 post-intervention) and Factor 8 (ACSC Class 96-97 post-intervention) Scale 8: Follower-Centered Leadership measuring empowerment.

- Factor 5 (ACSC Class 95-96 post-intervention) and Factor 2 (ACSC Class 96-97 post-intervention) Scale 8: Follower-Centered Leadership measuring empowerment which are identical.
- Factor 1 (ACSC Class 95-96 post-intervention) and Factor 1 (ACSC Class 96-97 post-intervention) Scale 5: Caring Leadership or leader reliability.

Table 32

Comparison of Factor Structures for ACSC Class 95-96 and ACSC Class 96-97 Post-intervention

ACSC Class 95-96 Post-intervention Factor Structure	ACSC Class 96-97 Post-intervention Factor Structure
Factor 2 Items: **4, 14, 24, 44**	Factor 3 Items: **4, 14, 24, 34, 44**
Factor 7 Items: **28, 38, 48**	Factor 8 Items: **28, 38**
Factor 5 Items: **8, 18**	Factor 2 Items: **8, 18**
Factor 1 Items: **15, 25, 45**	Factor 1 Items: **15,25** 33
Factor 4 Items: **1, 11, 21, 31, 41, 2, 12** **6, 16, 46**	Factor 4 Items: **1,11,21 2,12** 6
Factor 3 Items: **7, 17, 27, 37** **29, 39, 49 23, 43**	Factor 10 Items: **7, 17, 27** 23
Factor 6 Items: not interpretable	Factor 5 Items: **31, 41 29, 39 30, 40** **32, 42 16,36**
Factor 8 Items: not interpretable	Factor 6 Items: **5, 35** 3
Factor 9 Items: not interpretable	Factor 7 Items: not interpretable
Factor 10 Items: not interpretable	Factor 9 Items: not interpretable

Note: Bold type depicts factor/scale grouping

To a lesser degree scale similarities were evident between:

- Factor 4 (ACSC Class 95-96 post-intervention) and Factor 4 (ACSC Class 96-97 post-intervention) Scale 1: Capable Management measuring knowledge, skills and resources and Scale 2: Reward Equity dealing with goals and reward
- Factor 3 (ACSC Class 95-96 post-intervention) and Factor 10 (ACSC Class 96-97 post-intervention) Scale 7: Confident Leadership measuring instilling self-confidence
- Factor 3 (ACSC Class 95-96 post-intervention) and Factor 5 (ACSC Class 96-97 post-intervention) Scale 9: Visionary Leadership measuring a defined future.

With the exception of Scale 8 (Follower-Centered Leadership) measuring empowerment, (Factor 5, Class 95-96 post-intervention and Factor 2, Class 96-97 post-intervention) and Scale 2 (Reward Equity) dealing with goals and reward (Factor 4 Class 95-96 post-intervention and Class 96-97 post-intervention), Class 95-96 post-intervention shows a stronger representation of scale factors when compared to those of Class 96-97 post-intervention. Based on the similarity of the two factor structures, there is no evidence that gamma change occurred.

Control

Test for equivalence of conditions: The ACSC Class 95-96 OCAQ scores will be the same as those of the ACSC Class 96-97 OCAQ scores, after the intervention of attending ACSC.

The results of this analysis were significant but contrary to the expected outcome. Reliability and validity of the OCAQ were good to excellent.

OCAQ Internal Validity

Cronbach's α (Cronbach & Furby, 1990) for Class 95-96 one year post-intervention and Class 96-97 one year post-intervention for the OCAQ (Table 33) showed good to excellent item-scale reliabilities. Most important in gauging cultural change between the two year groups was the similarity of the total of all scales at 0.918 for Class 95-96 and 0.923 for the Class 96-97. Though Class 96-97 was the most consistent between the five subscales, Class 95-96 showed good α's in Managing Change, Achieving Goals, Coordinating Teamwork and excellent α's in Customer Orientation and Cultural Strength. It was these excellent α's that brought the overall totals into close alignment.

Table 33

Cronbach's α for OCAQ of ACSC Class 95-96 and ACSC Class 96-97 Post-intervention

	Cronbach's α I	Cronbach's α II
Scale 1: Managing Change	0.654690 N = 305	0.710902 N = 352
Scale 2: Achieving Goals	0.630545 N = 305	0.738674 N = 353
Scale 3: Coordinating Teamwork	0.613008 N = 305	0.729159 N = 351
Scale 4: Customer Orientation	0.802502 N = 304	0.745702 N = 346
Scale 5: Cultural Strength	0.747686 N = 304	0.702982 N = 352
Total:	0.917868 N = 303	0.923424 N = 344

I: ACSC Class 95-96 OCAQ Post-intervention Data
II: ACSC Class 96-97 OCAQ Post-intervention Data

ACSC Class 95-96 as Compared with ACSC Class 96-97: Post-intervention Differences Between Classes

The control comparison of OCAQ scores between year groups tested for equivalence. That is, was the Class 95-96 perception of the organizational culture the same as that of Class 96-97 after the intervention of attending ACSC?

Independent *t*-tests were run to compare OCAQ mean post-intervention scores for Class 95-96 with those for ACSC Class 96-97. Specifically, scores for each of the OCAQ's five summed scales were analyzed using independent *t*-tests. In every case, there were significant differences between the mean scores for the two classes.

Table 34 shows results of the independent *t*-test of Class 95-96 post-intervention as compared with Class 96-97 post-intervention for the Managing Change Scale. There was a significant difference between means at the .01 level. Class 96-97 mean scores for Managing Change were significantly higher than those of Class 95-96.

Table 35 shows results of the independent *t*-test of Class 95-96 post-intervention as compared with Class 96-97 post-intervention for the Achieving Goals Scale. There was a significant difference between means at the .01 level. Class 96-97 mean scores for Achieving Goals were significantly higher than those of Class 95-96.

Table 36 shows results of the independent *t*-test of Class 95-96 post-intervention as compared with Class 96-97 post-intervention for the Coordinated Teamwork Scale. There was a significant difference between means at the .01 level. Class 96-97 mean scores for Coordinated Teamwork were significantly higher than those of Class 95-96.

Table 34

Independent *t*-test of ACSC Class 95-96 Post-intervention to ACSC Class 96-97 Post-intervention, Managing Change Scale, OCAQ

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Post-intervention	265	17.087	3.318
ACSC Class 96-97 Post-intervention	353	18.790	3.425

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-6.230	577.9	0.000*	-1.704	-2.241/-1.166
Pooled	-6.202	616	0.000*	-1.704	-2.243/-1.164

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

Table 35

Independent *t*-test of ACSC Class 95-96 Post-intervention to ACSC Class 96-97 Post-intervention, Achieving Goals Scale, OCAQ

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Post-intervention	265	18.438	3.274
ACSC Class 96-97 Post-intervention	353	21.147	3.329

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-10.110	573.7	0.000*	-2.710	-3.236/-2.183
Pooled	-10.086	616	0.000*	-2.710	-3.237/-2.182

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

Table 36

Independent *t*-test of ACSC Class 95-96 Post-intervention to ACSC Class 96-97 Post-intervention, Coordinated Teamwork Scale, OCAQ

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Post-intervention	265	18.419	3.222
ACSC Class 96-97 Post-intervention	352	21.321	3.449

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-10.744	587.2	0.000*	-2.902	-3.433/-2.372
Pooled	-10.642	615	0.000*	-2.902	-3.438/-2.367

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

Table 37 shows results of the independent *t*-test of Class 95-96 post-intervention as compared with Class 96-97 post-intervention for the Customer Orientation Scale. There was a significant difference between means at the .01 level. Class 96-97 mean scores for Customer Orientation were significantly higher than those of Class 95-96.

Table 38 shows results of the independent *t*-test of Class 95-96 post-intervention as compared with Class 96-97 post-intervention for the Cultural Strength Scale. There was a significant difference between means at the .01 level. Class 96-97 mean scores for Cultural Strength were significantly higher than those of Class 95-96.

Table 37

Independent *t*-test of ACSC Class 95-96 Post-intervention to ACSC Class 96-97 Post-intervention, Customer Orientation Scale, OCAQ

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Post-intervention	265	17.709	3.978
ACSC Class 96-97 Post-intervention	353	19.960	3.558

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-7.280	532.3	0.000*	-2.251	-2.858/-1.644
Pooled	-7.397	616	0.000*	-2.251	-2.848/-1.653

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

Table 38

Independent *t*-test of ACSC Class 95-96 Post-intervention to ACSC Class 96-97 Post-intervention, Culture Strength Scale, OCAQ

Group	*N*	Mean	Standard Deviation
ACSC Class 95-96 Post-Intervention	265	18.245	3.719
ACSC Class 96-97 Post-Intervention	353	20.300	3.393

Variance	*t*	df	*p*<	Difference in Means	95% CI
Separate	-7.057	539.1	0.000*	-2.055	-2.627/-1.483
Pooled	-7.150	616	0.000*	-2.055	-2.619/-1.491

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

Tests for Gamma Change Using Factor Analysis.

Factor analyses of Class 95-96 and Class 96-97 post-intervention of the OCAQ (Table 39) were conducted to determine whether gamma change had occurred during the

intervention and to evaluate construct validity support for the instrument. Analysis of the samples used a varimax rotation with an eigenvalue of 1.00; the result is shown in detail in Appendix C. The solution consists of five factors, which support but do not map precisely against the five OCAQ scales. Neither do the two factor structures give the appearance of differences or changes of such substance or magnitude as to suggest or indicate gamma change, that of basic cognitive restructuring of the way respondents think about the organization's culture.

Further, Table 39 suggests that the two classes perceive their cultures as quantitatively different rather than qualitatively different. Specifically, that is, there appear to be underlying commonalties in the factor structure for the two classes' data. Thus the cultures do no appear to differ in quality, that is, in fundamental structural identity. Differences that appear are differences in quantitative scores on various culture dimensions, not differences in the nature of the dimensions themselves. Factor 5 in both Class 95-96 post-intervention and Class 96-97 post-intervention, representing change, and Factor 3 (Class 95-96 post-intervention) and Factor 4 (Class 96-97 post-intervention), representing teamwork, are identical. Factor 1 (Class 95-96 post-intervention) is inordinately large and contains the remainder of groupings for this sample. Thus, most of the items from Customer Orientation, Cultural Strength, Achieving Goals, and Coordinated Teamwork respectively, are common to Factor 1 of Class 95-96 post-intervention, and to Factor 1, 5 and 3 of the second (Class 96-97 post-intervention), with the exception of the Managing Change Scale which is not represented

in the second analysis. Additionally, Factors 4 and 2 of Class 95-96 post-intervention have no groupings and are isolates.

Table 39

Comparison of OCAQ Factor Structures for ACSC Class 95-96 and ACSC Class 96-97 Post-intervention

ACSC Class 95-96 Post-intervention OCAQ Factor Structure	ACSC Class 96-97 Post-intervention OCAQ Factor Structure
Factor 5 Items: **6, 16** (Managing Change)	Factor 5 Items: **6, 16** (Managing Change)
Factor 3 Items: **8, 23** (Coordinated Teamwork) 1 (Managing Change) 2 (Achieving Goals) 5 (Cultural Strength)	Factor 4 Items: **8, 23** (Coordinated Teamwork) 1 (Managing Change) 2 (Achieving Goals) 5 (Cultural Strength)
Factor 1 Items: **20, 25, 30** (Cultural Strength) **18, 28** (Coordinated Teamwork) **4, 9, 19, 24, 29** (Customer Orientation) **11, 21, 26** (Managing Change) **12, 22** (Achieving Goals)	Factor 1 Items: **10, 25, 30** (Cultural Strength) **18,28** (Coordinated Teamwork) 29 (Customer Orientation) 26 (Managing Change)
(No equivalent factor)	Factor 5 Items: **4, 19, 24** (Customer Orientation) 20 (Cultural Strength) 22 (Achieving Goals)
Factor 4 Items: 14 (Customer Orientation) 15 (Cultural Strength) 27 (Achieving Goals)	(No equivalent factor)
Factor 2 Items: 3 (Coordinated Teamwork) 7 (Achieving Goals)	Factor 3 Items: **7, 27** (Achieving Goals) **3, 13** (Coordinated Teamwork) 14 (Customer Orientation)

Note: Bold type depicts factor/scale grouping

Summary

This chapter presented the results of the study. Two survey instruments, The Leadership Profile (TLP) and the Organizational Culture Assessment Questionnaire. Reliability and validity for both the TLP and the OCAQ were good to excellent for all administrations of the instruments.

The following hypotheses were tested:

1. Participants in the same year group, as measured by TLP scores before and after attending ACSC, will show a significant increase in both transactional and transformational scores.
2. Participants in the same year group will show a continuing increase in both transactional and transformational TLP scores one year after the intervention compared with their scores taken immediately after the training intervention (H2A) and between one and two years after the intervention (H2B).
3. The improvement in TLP scores will be equivalent for all classes.

Control: The test for equivalency of conditions. ACSC Class 95-96 post-intervention OCAQ scores will be the same as those of the ACSC Class 96-97 post-intervention OCAQ scores.

Results are as follows.

- ACSC Class 95-96 pre-intervention TLP scores compared with their post-intervention TLP scores showed significant increases as predicted for all three leadership categories: transactional behavior, transformational behavior and

transformational characteristics. Instrument reliability and validly were good to excellent.

- ACSC Class 96-97 pre-intervention TLP scores compared with their post-intervention TLP scores showed significant increases as predicted for all three leadership categories: transactional behavior, transformational behavior and transformational characteristics. Reliability and inter-item validly of instrument was good to excellent.
- ACSC Class 94-95 one year post-intervention TLP scores compared with ACSC Class 94-95 TLP scores two years post-intervention showed a significant increase as predicted for the transformational behavior category. There was no significant difference in TLP scores for the transactional behavior and transformational characteristics categories. Reliability and inter-item validly of the TLP was good to excellent.
- ACSC Class 95-96 post-intervention TLP scores compared with ACSC Class 95-96 TLP scores one year post-intervention showed no significant difference for any of the three leadership categories: transactional behavior, transformational behavior or transformational characteristics. Reliability and validly of the TLP was good to excellent.
- ACSC Class 94-95 TLP scores one year post-intervention compared with ACSC Class 95-96 TLP scores one year post-intervention showed no significant difference for any of the three leadership categories: transactional behavior, transformational

behavior or transformational characteristics. Reliability and inter-item validly of the TLP was good to excellent.

- ACSC Class 95-96 TLP scores post-intervention compared with ACSC Class 96-97 TLP scores post-intervention showed no significant difference for any of the three leadership categories: transactional behavior, transformational behavior or transformational characteristics. Reliability and validly of the TLP was good to excellent.
- ACSC Class 95-96 post-intervention OCAQ scores differed significantly from those of ASCS Class 96-97 post-intervention scores in all five OCAQ categories: managing change, achieving goals, coordinating teamwork, customer orientation and cultural strength.

This chapter yielded a number of significant findings for each of the three hypotheses and the control. Hypotheses One and Three were supported in full, while Hypothesis Two was supported in full except for one leadership category -- transformational characteristics -- for one class. There were a few significant findings regarding the demographic characteristics of the classes which will be discussed further in Chapter Five. Examination of cultural scores for 1995 and 1996, used to control for the presence of organizational changes over time in this recurrent institutional cycle design, showed that there may have been organizational changes that affected leadership outcomes. Chapter Five will examine these results in detail and present implications for future research.

CHAPTER 5: CONCLUSION OF STUDY

Introduction

The objective of this chapter is to provide a summary and integration of the results of this study. The question that provided the foundation for this research is whether leadership training affects individual leadership style and characteristics. Specifically, this study investigated whether leadership training changes individuals' leadership styles and characteristics by examining the effects of an Air Force leadership development program carried out at a certificated leadership school. Three hypotheses and one control supported the research question. They were:

- H1 - Participants in the same year group, as measured by TLP scores before and after attending ACSC, will show an increase in both transactional and transformational scores.
- H2 - Participants in the same year group will show a continuing increase in both transactional and transformational TLP scores one year after the intervention compared with their scores taken immediately after the training intervention (H2A) and between one and two years after the intervention (H2B).
- H3 - The improvement in TLP scores post-intervention will be equivalent for all classes. All should improve. There should not be dramatic differences

because both classes are selected the same way and go through the same program.

- Control - Test for equivalence of conditions. The ACSC Class 95-96 OCAQ (Organizational Culture) scores will be the same as those of ACSC Class 96-97 OCAQ scores, after the intervention of attending ACSC.

This chapter is organized into seven sections: Introduction, Overview, Summary and Discussion of Findings, Synthesis Discussion, Limitations of the Study, Implications for Future Research, and Conclusion. Summary and Discussion of Findings is further divided into five subsections: (1) Demographic Analysis; (2) Hypothesis One - ACSC Class 95-96 Pre-intervention Compared with Post-intervention, and ACSC Class 96-97 Pre-intervention Compared with Post-intervention, with Discussion; (3) Hypothesis Two - ACSC Class 94-95 One Year Post-intervention Compared with ACSC Class 94-95 Two Years Post-intervention, and ACSC Class 95-96 Post-intervention Compared with ACSC Class 95-96 One Year Post-intervention, with Discussion; (4) Hypothesis Three - ACSC Class 94-95 One Year Post-intervention Compared with ACSC Class 95-96 One Year Post-intervention, and ACSC Class 95-96 Post-intervention Compared with ACSC Class 96-97 Post-intervention, with Discussion; and (5) Control, with Discussion.

Overview

This study used Campbell and Stanley's (1963) recurrent institutional cycle design. The design was chosen due the restriction of not being able to divide the sample into two, thus providing a control group. In the recurrent institutional cycle design, each

subsequent group or class over time is used as a control for the preceding and following groups

The site selected was Air Command and Staff College, Air University, Maxwell Air Force Base, Alabama. ACSC is a certificated, ten-month leadership school central to the Air Force's leadership development. The total sample population was U. S. military officers attending ACSC in academic years 1995 (N=590), 1996 (N=587), and 1997 (N=592). The researcher received individual responses the number of which varied according collection point (beginning and ending of each academic year and follow-up years).

The Leadership Profile (TLP) (Rosenbach, Sashkin, & Harburg, 1996; Sashkin, 1994, 1996b) was used to assess the dependent variable of leadership. The instrument was selected based on its integrating, cumulative theoretical framework and its developers' belief that leadership behaviors and characteristics can be learned. The Organizational Culture Assessment Questionnaire (OCAQ) (Sashkin, 1990c, 1990d) was used as a control to determine if a cultural change had occurred in ACSC. This was necessary because of the comparisons of TLP leadership data across time when using the recurrent institutional cycle design (Campbell & Stanley, 1963). Assessment of alpha, beta, and gamma change (Golembiewski et al., 1976; Golembiewski & Billingsley, 1980; Thompson & Hunt 1996) within and across sample classes was used to determine the nature of the training effect, if any, (See Chapter 3 for a detailed explanation of alpha, beta, and gamma change.

Demographic variables were examined to eliminate rival hypotheses and possible confounding effects. Pearson *r* correlations, Cronbach's α and factor analyses were used to determine internal validity and reliability of the instruments used. Independent and paired *t*-tests were used to determine the effects of leadership training on the participants. Factor analysis was used to determine whether gamma-type changes (Golembiewski et al., 1976; Golembiewski & Billingsley, 1980) occurred following training. A summary and discussion of the results and related literature follows.

Summary and Discussion of Findings

Demographic Analysis

Demographic crosstabulation analyses were conducted to determine if any significant relationships existed between the ACSC classes' TLP scores in each of the three leadership categories (transactional behavior, transformational behavior and transformational characteristics) and ten different demographic variables. The following samples were analyzed: Class 94-95 (one year after the intervention and two years after the intervention); Class 95-96 (pre-intervention, post-intervention, and one year after the intervention); and Class 96-97 (pre-intervention and post-intervention). Tables containing demographic analysis, to include Pearson chi square, Cramer's V and significance, are at Appendix D.

Demographic variables analyzed were: (1) Rank, (2) Service, (3) Source of Commission, (4) Aeronautical Rating, (5) Gender, (6) Race, (7) Marital Status, (8) Military Spouse, (9) Number of Children, and (10) Highest Level of Education. In reviewing all possible relationships, only four were significant. These relationships were

so small as to be practically of trivial importance, although they were statistically significant.

Class 94-95 (N=155) two years post-intervention showed a significant relationship (p=.019) between marital status and transactional behavior. Class 95-96 post-intervention (N=282) showed a significant relationship (p=.02) between military spouse and transactional behavior. Class 95-96 one year post-intervention (N=154) showed a significant relationship (p<.001) between education and transactional behavior. These findings are suspect, however, because the likelihood ratio chi square of the first was p=.679, the second was p=.068, and the third was p=.697. However, the relationship between aeronautical rating and transformational behavior for Class 95-96 post-intervention (N=282; p=-.04; likelihood ratio chi square p=.002) was clearly significant. There were no other significant relationships between TLP scores and demographic characteristics for any other classes tested.

The significant relationship between aeronautical rating and transformational behavior for Class 95-96 post-intervention called for a closer look. Of the 282 in the sample, 85 were pilots, 37 were navigators, and 160 were non-rated (did not hold an aeronautical rating). Two sample t-tests were run to determine where the significant relationships within the rated category were. Comparisons were made between pilots and navigators (Table 14), pilots and non-rated (Table 15), and navigators and non-rated (Table 16). The only significant relationship found was in the comparisons of pilots and non-rated (separate variance p=.005; pooled variance p=.002). Non-rated demonstrated a stronger preference for transformational behavior (mean=84.8) after the intervention than

did pilots (mean=81.376). This significant finding was only present in Class 95-96 post-intervention; no changes favoring pilots were made to the ACSC curriculum during the span of the study.

One possible explanation of this significant difference between pilots and non-rated is the preferences that the Air Force generally accords to pilots. Rosenbach's (1982, 1986) two military longitudinal studies of Air Force pilots found similar preferences favoring the pilot community. Pilots are favored with better promotion rates, higher pay (in the form of flight pay and sign-on bonuses), and in admittance into the senior leadership when compared to non-rated and navigators. Additionally, during the 1995-96 timeframe, the Air Force increased pro-pilot rhetoric and pilot bonuses in the hope of forestalling a pilot shortage in the upcoming years, a definite transactional arrangement.

For the most part pilots do not command large numbers of enlisted personnel as do non-rated. Rather, they focus on flying activities in small squadrons made up almost solely of pilots. After ACSC, pilots are usually assigned to small headquarters positions or return to flying duties in small units of other pilots. When promoted to the senior leadership level, they command mostly officers rather than enlisted personnel. This equates to smaller, better educated and less problem prone followers who share a common professionalism.

Non-rated, on the other hand, do not receive the additional pay and bonuses that the pilots do. Further, their professional goals differ, with the non-rated looking to command a non-flying support organization with a workforce primarily composed of enlisted personnel. Prior to attending ACSC, the majority of non-rated participants had

previous experience in leading a large support organization while the majority of pilots did not. Upon completion of the ACSC program, non-rated for the most part go on to command even larger units than they did prior to their selection to attend ACSC. Further, because the non-rated organizations more closely mirror the management, leadership structure and trends of the civilian business world, non-rated are usually well-versed in the most current management trends while pilots are not. Because the non-rated group has limited pay, promotion and senior leadership opportunities, they usually derive their personal satisfaction from the more abstract benefits of leadership rather than the more tangible, as is the case with pilots. This is clearly a more transformational organizational climate than the transactional, quid pro quo climate of the pilot organization.

This, then, provides a possible explanation for the stronger non-rated preference for transformational behavior. Pilots, who operate individually and not as large group leaders due to the organizational structure, simply do not have the opportunity to use the advanced leadership methods that the non-rated must use on a daily basis. Additionally, specifically during this timeframe pilots were being influenced by the Air Force in a transactional way (better promotion selection, increased rhetoric, higher flight pay and additional sign-on bonuses), while the non-rated were excluded from any of these benefits.

Because significant findings were limited to the pilot/non-rated portion of the sample, it is possible that the pilots were responding to this macro-culture of the Air Force (of which ACSC is a part) which included the transactional efforts the Air Force was making at the time to increase pilot retention. No other findings supported this one

significant difference, including the identical category in the Class 94-95. For this reason, the significant finding between pilots and non-rated in Class 95-96 post-intervention may be more an impact of the overall culture of the Air Force and its initiatives on pilot retention rather than the intervention.

Reasonable explanations have been offered above, in the finding of a difference between rated and non-rated trainees in post-intervention transformational leadership scores. However the fact remains that this difference appears for only one class one time raises the possibility that the finding is simply a random chance event.

Summary

Based on these findings it was determined that rival hypotheses and possible confounding effects could be eliminated and the demographic profiles of ACSC trainees at the time of measurement were similar enough to be considered comparable across classes.

Hypothesis One

Hypothesis One posited that TLP scores for trainees in the same class would increase following the training intervention. The hypothesis was tested using two samples: a comparison of the ACSC Class 95-96 before and after the intervention and a comparison of ACSC Class 96-97 before and after the intervention.

Comparison of Classes

To assure initial comparability of the two classes, independent *t*-tests between Class 95-96 pre-intervention and Class 96-97 pre-intervention scores were performed for each of the three leadership categories of the TLP. Results showed no significant difference between the two classes' transactional behavior scores (p=.521) (Table 17) or transformational behavior scores (p=.118) (Table 18). However, the Class 95-96 pre-intervention transformational characteristics score was significantly higher than that of Class 96-97 (Table 19). This result may reflect changes in the overall Air Force culture between two points in time. Or, it may reflect perceived differences in ACSC culture as manifested in the OCAQ analysis discussed later in the Control section of this chapter. In any case, further analyses of data within each group and between the two groups, discussed in the following sections of this chapter, showed effects that could not reasonably be attributed to the confounding effect of the initial difference in TLP transformational characteristics scores.

ACSC Class 95-96 Pre-intervention Compared with Post-intervention

Hypothesis One proposed that there would be significant increases in TLP scores after the training intervention. Paired *t*-tests of Class 95-96 (Table 20) showed significant

increases in all three TLP categories. Further, each of the ten TLP scales, showed a significant increase except for Scale 8 (Follower-Centered Leadership).

In his discussion of Visionary Leadership Theory, Sashkin (1996a) states that visionary leaders are both transactional and transformational. Visionary leaders are also self-confident, pro-social, and have high cognitive capabilities (Sashkin, 1996a). Further, according to Rosenbach, Sashkin and Harburg (1996) and supported by Vona (1997), the most effective leaders exhibit high degrees of both transactional and transformational behaviors. Transformational leadership, however, is evidenced not just by behavior, but is grounded in specific personal characteristics: (self-confidence, empowerment-orientation, and cognitive capability). These characteristics enable transformational leaders to build cultures. A visionary leader, is therefore, expected to score high in all three categories of the TLP instrument: transactional behavior, transformational behavior, and transformational characteristics.

To summarize, one might conclude in light of Kirkpatrick's (1967) theory that the group taken as a whole shows no evidence of *reaction*, (how well trainees like a given training program), *learning*, (understood and absorbed principles, facts, and techniques), at least regarding leadership, and no evidence of *learning behavior* change or *results* in the form of measurable differences in results. However, the paired results provide strong evidence of training effects. This conclusion is further strengthened when examined in the context of the Golembiewski et al. (1976, 1980) alpha, beta, gamma change model. That is, if there were no significant variation, no movement at all, there would be no evidence for any change, not even simple alpha change. Factor analysis is,

according to Golembiewski et al., the acid test for identification of gamma change, change in the way trainees construct the meaning of their experience. Factor analyses demonstrated factor structures that were similar and showed a relatively stable breakout of factors for both pre and post-intervention data. This is shown most clearly in Tables 21 and 23, which illustrate the parallelism between factor structures pre- and post-intervention for Class 95-96 and Class 96-97. This permits us to conclude that there was no evidence of gamma change. Lindell and Dexler (1980) argue that change in factor structure could conceivably indicate alpha or beta change, not just gamma change. However, no change in factor structure does not mean that no alpha or beta change occurred.

Lindell and Dexler (1980) also assert that it is only when the instrument possesses sound psychometrics that we can reliably distinguish between beta and gamma change. The Cronbach's α (Tables 7, 9 and 12) and Pearson *r* correlations (Tables 8, 10, 11 and 13) for the TLP show strong validity and reliability findings for all class administrations.

In considering the results of the paired *t*-tests in conjunction with the stable pre- and post-intervention factor structure, it is clear that there was either alpha or beta change at the individual level (change in respondents perceptions of the measurement metrics). However, it seems plausible to suggest that there is no beta change.

ACSC Class 96-97 Pre-intervention Compared with Post-intervention

Hypothesis One is even more strongly supported by the Class 96-97 data. Paired *t*-tests showed significant increases following the intervention: transactional behavior

($p<.001$), transformational behavior ($p=.012$), and transformational characteristics ($p=.002$) (Table 22).

A closer look at the Class 96-97 paired *t*-tests (Table 22) shows that that seven of the ten scales increased significantly from pretest to postest scores. Both transactional behavior scales, Scale 1 (Capable Management) and Scale 2 (Reward Equity), showed significant increases pre- to post-intervention ($p<0.001$). There were also significant increases in five of the eight scales assessing transformational leadership, specifically Scale 3 (Communication Leadership) and Scale 5 (Caring Leadership), Scale 7 (Confident Leadership), Scale 9 (Visionary Leadership), and Scale 10 (Principled-Centered Leadership).

Again, the results of the paired *t*-tests in conjunction with the stable pre- and post-intervention factor structure make it clear that there were significant changes at the individual level. In this case it seems plausible to suggest that there may have been either alpha or beta change. (Data are not yet available for ACSC Class 96-97.)

Discussion

Hypothesis One was supported in full. There was a significant increase in all three leadership categories for both Class 95-96 and Class 96-97. Identifying the reasons behind these changes is less simple. Sashkin (1996a) stresses the importance of the top executive leader. It is, then, worth examining this aspect of the present study in qualitative terms.

Colonel John A. Warden, III, arrived at ACSC in 1992, fresh from the successful Gulf War air campaign he designed. Senior Air Force leadership tasked the visionary

leader to "rebuild" the ACSC curriculum. He remained commandant through three academic cycles, from 1992 to 1995. After his departure, his transformational curriculum remained intact. Class 95-96 was the third class to complete Warden's transformational curriculum but the first to experience the intervention under a new commandant, Colonel John W. Brooks, who was not the visionary leader who had built the curriculum.

Warden was not selected for promotion to brigadier general and consequently reached mandatory retirement prior to Class 95-96. Though Warden knew that he would not be promoted to brigadier general the school still looked at the position as promoting as occupants had always been promoted in the past. This action possibly sent the message to the student population that though the Air Force had deliberately placed Warden in the position of commandant to rebuild the curriculum into a change-instilling program, he was not rewarded for successful completion of his work. Warden's replacement, Brooks, was an "interim commandant." He was to implement the curriculum as Warden had designed with no significant changes until another change agent could be found to take the helm.

Midway through the 1995-96 school year, Brooks was selected for promotion to brigadier general. Additionally, beginning with Class 95-96 the previously "flat" administrative organization of ACSC was changed by adding seven colonels (of which there was a surplus in the Air Force) to the ACSC staff. Curriculum as developed by Warden remained unchanged, as did all other factors.

ACSC Class 96-97 saw a new commandant, Colonel Jerry M. Drennan, who as Brooks before him, was tasked to implement the curriculum originally developed by

Warden. As with now-Brigadier General Brooks, Drennan made no significant changes to the curriculum. Placement of additional colonels into the administrative (non-teaching) side of ACSC continued, and the once flat organization became a more hierarchical structure through their effort to build an organization in which they could participate.

Additionally, at this time the Air Force announced the 1997 manpower reductions -- reductions which could conceivably affect the students' continuation as Air Force officers and raised questions about what military capability would remain in the organizations they were destined to command. Finally, at the end of the school year Class 96-97 learned that Drennan was selected for promotion to brigadier general.

In light of the importance of the top executive leader (Sashkin & Rosenbach, 1993; Vona, 1996), and given that ACSC's top leader changed from the visionary builder Warden to the interim maintainer Brooks and finally to Drennan, we might expect to see significant differences in leadership scores between classes instead of the significant increases in all three leadership categories for both Class 95-97 and Class 96-97. However, it is that very culture-building component of the visionary leader that explains why both classes increased despite having different top executive leaders.

Sashkin (1996a) asserts that the visionary leader builds a culture within the organization. From 1993 to 1995, Warden rebuilt the curriculum, which translated into a more transformational culture. This curriculum was still in force during the two years following his retirement. Both Brooks and Drennan maintained the curriculum that Warden implemented and thus maintained the culture imbedded by the original visionary leader and experienced by both classes during the intervention. Furthermore, this ACSC

culture was apparently strong enough to overcome any concerns the students might have had regarding the changes in the overall Air Force culture which were occurring simultaneously. Because the TLP scores increased for both Class 95-96 and Class 96-97 across the three leadership categories after completing ACSC, it is reasonable to speculate that even though the visionary leader who implemented these changes was not the commander during their intervention, both classes were responding to the curriculum Warden established. Sashkin might propose that the individuals were responding to the ACSC culture Warden imbedded through his transformational curriculum. In sum, the present results are consistent with Sashkin's argument concerning the culture building role of the transformational leader.

But Sashkin (1996d) also asserts that visionary leadership is unusual. In light of the literature and based upon the group mean scores, one cannot consider that the training intervention, despite significant positive effects, produced a large group of visionary leaders. What can be said, looking at the paired *t*-test findings, is that these results may help to pinpoint individuals in Class 95-96 who are moving in the direction of visionary leadership.

Support for the findings in Hypothesis One, according to Kirkpatrick's (1967) model, would indicate that learning is occurring during the intervention. Golembiewski et al.'s (1976, 1980) analysis of types of change suggest that these results indicate a true training effect, or alpha change, because paired *t*-test analyses of scores for both classes showed pre- to post-intervention increases in all three leadership categories. There is no evidence that gamma change occurred - - change in trainees' frame of reference, that is,

conceptual categorization of leadership phenomena. Such a change is indicated by substantive shifts in factor structure, over time. Factor analysis of the present data show no evidence for such change (Lindell and Drexler, 1980). That is, the factor structures remained parallel, if somewhat fragmented, for Class 96-97 pre- and post-intervention.

Hypothesis Two will examine if this trend of increasing scores in all three leadership categories continued following the students' completion of ACSC and return to mainstream Air Force jobs.

Hypothesis Two

Hypothesis Two predicted continuing significant increases in TLP scores in ACSC classes once the participants returned to the mainstream Air Force environment. It was tested using two comparisons: (1) a comparison of ACSC Class 94-95 one year after the intervention with ACSC Class 94-95 two years after the intervention, and (2) a comparison of ACSC Class 95-96 post-intervention compared with ACSC Class 95-96 one year after the intervention. Both uses of the TLP showed good to excellent validity and reliability of the instrument. The first comparison partially supported this hypothesis, while the second did not. ACSC Class 94-95 showed a significant increase in both transactional and transformational behavior scores but no significant difference in transformational characteristics. ACSC Class 96-97 showed no significant increase in any category. In fact, there was a significant decrease in transaction scores when their pre- and post-intervention transactional scores were compared.

ACSC Class 94-95 One Year Post-intervention Compared with ACSC Class 94-95 Two Years Post-intervention

Paired *t*-tests (Table 24) showed an increase in transactional behavior, but this change was not statistically significant (p=.053). There was, however, a significant increase in transformational behavior (p<0.001). Transformational leadership characteristics did not change significantly (p=.143). The transactional and transformational behavior increases are consistent with the increase delineated the discussion of Hypothesis One above, in which Class 96-97 also showed a significant increase in these categories during the same calendar period.

With respect to Hypothesis One, which showed many significant changes on specific TLP scales, the significant findings in Hypothesis Two are largely due to exceptionally large changes on certain specific scales. For example, Scale 2 (Reward Equity) showed a very large increase whereas Scale 1 (Capable Management) showed no significant increase. Similarly in the transformational behavior category, Scale 3 (Communication Leadership) increased greatly while the changes for Scale 4 (Credible Leadership), Scale 5 (Caring Leadership), and Scale 6 (Creative Leadership) were in no case significant.

We should note that one must question whether these changes represent macro-level visionary leadership. Since there is no pre-intervention data on Class 94-95, it is not possible to conclude that changes subsequent to the training intervention were due to the intervention of attending ACSC.

Factor analysis could not be conducted because not enough completed TLPs were returned. Members of this class were contacted by a mail-out of the questionnaire, unlike Hypothesis One data which was collected on-site at ACSC. Consequently it is not possible to determine whether beta or gamma change occurred. Based on the paired *t*-test responses, however, we can propose that there was either alpha or beta change in transactional behavior and transformational behavior.

As noted in Chapter Four, this class was unique in comparison with all other classes in the present study because it was the only one in which numerous individual respondents included unsolicited narrative comments. Twenty-five percent (36) of the respondents included notes with the returned questionnaires. All but two were positive

and optimistic in that they viewed the problems that they were experiencing in their daily jobs as opportunities to improve. What is more important, in every case the respondents identified themselves as change agents. These notes used the theory and jargon of the program to explain their interpretations of the problems they faced after attending the program. In sum, they demonstrated transformational behavior not only in the significant statistical findings addressed above but also in the voluntary narratives they included with their questionnaire responses.

The increase in transactional and transformational behavior for this class is consistent with what Bass' (1990) observation to the effect that in both the military and corporate sectors, transformational leadership is a significant factor in success versus failure. The absence of any increase in transactional characteristics, however, is supported by Boyd (1988), who states that as the distinction lessens between military specialties and civilian jobs, leadership may become less transformational and more transactional. This, according to Wakin (1984, p. 3, as quoted by Boyd, 1988) "may have a negative impact of military effectiveness".

The linkage of increased transactional and transformational behavior scores, coupled with the narrative comments, raises speculation that Class 94-95 may have experienced alpha or beta change as a result of attending ACSC. However, since the ACSC Database did not begin including TLP data until 1995 and therefore lacks pretest-postest statistical data on Class 94-95's intervention, it is impossible to determine with certainty the form of change that occurred.

ACSC Class 95-96 Post-intervention compared with ACSC Class 95-96 One Year Post-intervention

Paired *t*-tests for thse classes show no significant difference in transactional behavior, transformational behavior, or transformational characteristics scores after the training compared with scores obtained one year after the intervention (Table 25).

No test for gamma change could be conducted for this class because factor analysis, which was feasible for the post-intervention collection, was not possible a year later because of the small sample size.

Very little can be said about this class with respect to Hypothesis Two beyond the fact that Class 95-96 showed absolutely no change in group means or paired results of TLP scores between ACSC completion and one year out. Thus, attending ACSC had no long-term impact on these respondents.

Discussion

Comparison of TLP score changes for ACSC Class 94-95 (one year after the intervention to two years after the intervention) with ACSC Class 95-96 (post-intervention to one year after the intervention) shows striking differences. While Class 94-95 showed a significant increase in transactional and transformational behaviors once beyond the walls of ACSC, Class 95-96 had no significant sequential change in any of TLP's three leadership categories from pre-intervention to one year out.

The problem with comparing ACSC Class 94-95 one year after the intervention to the same class two years later is that this was the first sample collected, so we do not know what their baseline was. However, there is a clear change between one year and

two years after the intervention. That would lead us to suspect that change had been initiated by something they held in common -- their attendance at ACSC -- where Warden, the architect of the change program, encouraged them to be agents of change in turbulent times, a fact emphasized in unsolicited written comments received from twenty-five percent of the respondents.

In Class 94-95's return of surveys after ACSC, 36 included unsolicited narrative notes with their response. Except for two narrative responses (an Air National Guardsman who lost his Guard job while attending ACSC and a pilot passed over for promotion), all responses were positive. They described the problems they were facing in their work as challenges and themselves as change agents sent out to fix the problem. Additionally narratives often included comments (19 out of 36) encouraging the study as a means of showing the rest of the Air Force the relevance and need for the type of intervention they experienced at ACSC. In contrast, not one comment other than an address change was included in returns from the Class 95-96 one year after the intervention collection.

Obviously something underlies these differences. The instrument is not suspect because between the two classes, validity and reliability of the TLP remained good to excellent. Further, the differences between Class 94-95 two years after the intervention and Class 95-96 one year after the intervention do not reflect a change in Air Force culture because both were measured at the same time within the same Air Force culture in the workplace. Finally, there were no significant demographic differences between the two classes. This leaves two possibilities: curriculum and leadership.

The curriculum that this class completed as their intervention was the same as ACSC Class 95-96 under Brooks as commandant (and, incidentally, as ACSC Class 96-97 under Drennan as commandant). The only difference is that Class 94-95 completed the intervention under the command of the architect of the program, while Class 95-96 completed their intervention under the command of an interim commandant. Class 94-95 experienced ACSC in the heyday of Warden's reorganization of the curriculum which received rave reviews from senior Air Force leadership prior to his mandatory retirement at the rank of colonel. It may well be that the presence of the visionary leader and his personal contact with Class 94-95 made such a strong impact that two years after the intervention they still viewed themselves as change agents, approaching the problems and difficulties in their work as challenges and opportunities. Their continued improvement in transactional behavior and transformational behavior TLP scores would support such a conclusion.

It seems that the effects upon students who experience a leadership program after the architect and visionary leader has departed are not nearly as enduring as the effects upon students who experienced the program when the visionary leader was present and had the perceived endorsement of the overall organization.

Hypothesis Three

Hypothesis Three testing required comparing TLP scores between classes after training, under the assumption that the training would produce equivalent post-training changes. It was predicted that the improvement in post-intervention TLP scores would be the same for all classes. While all should improve, there should not be dramatic differences because both classes were selected the same way and went through the same program. Specifically, ACSC Class 94-95 one year post-intervention was compared with ACSC Class 95-96 one year post-intervention sample, and ACSC Class 95-96 post-intervention was compared with ACSC Class 96-97 post-intervention. If any class is measured at a given post-intervention point and compared with any other class at the same post-intervention point, their scores should be equivalent. Independent *t*-test were used since the comparison was between classes composed of different individuals.

ACSC Class 94-95 One Year Post-intervention Compared with ACSC Class 95-96 One Year Post-intervention

This two-sample comparison supported the hypothesis. No significant differences appeared in comparing one class to another one year following the intervention (Tables 26-28). Therefore the results indicate equivalence between these two classes.

ACSC Class 95-96 Post-intervention Compared with ACSC Class 96-97 Post-intervention

Comparisons of these two classes fully supported the hypothesis. There was no significant difference between the classes' transformational behavior, transformational behavior, and transformational characteristics scores based on a comparison of group

means (Tables 29-31). Scale similarities were evident (Table 32), with parallel factor structure between the two classes with no indication of gamma change. It is reasonable to conclude that the two classes are equivalent.

Discussion

Hypothesis Three was supported as a test of equivalence for two between-samples comparisons. TLP scores for Class 94-95 one year after the intervention were not significantly different from those of Class 95-95 one year after the intervention, and Class 95-96 TLP scores post-intervention were not significantly different from those of Class 96-97 post-intervention.

There are several ways to account for this equivalence. First, as previously stated, the "change curriculum" at ACSC was the same for Class 94-95, Class 95-96 and Class 96-97. Second, there are no confounding demographic differences in the types or disposition of respondents among the three classes. Third, for this hypothesis, both Class 95-96 and Class 96-97 were tested at the same time massive personnel reductions were taking place in the Air Force and across the military services as a whole. Fourth, the two classes that were tested one year after the intervention (Class 94-95 and Class 95-96) were learning new jobs and responding to the Air Force culture as a whole rather than just to the ACSC culture.

Though not statistically evident, however, there is a difference between Class 94-95 and Class 95-96. Class 94-95 completed the intervention under the architect of the program who at that time had the endorsement of the Air Force leadership, while Class 95-96 completed the intervention under the interim commandant. One way this

manifested itself was in the large number of positive narrative notes included in Class 94-95's responses along with their completed TLPs. As previously mentioned in Hypothesis Two, in these narratives, individuals continued to identify themselves as change agents even after the one-year point. No narratives of any kind came with any other class's responses. Thus, even though statistically both classes are equivalent, the class that completed the intervention under the visionary leader may be different in how they frame their past ACSC experience. We can speculate that the experience of attending ACSC under the visionary leader may be the reason for Class 94-95's continued improvement in transactional behavior and transformational behavior scores compared with no continued improvement for Class 95-96 as seen in Hypothesis Two.

Control

The Control expands the test for equivalence and compares post-intervention Organizational Cultural Assessment Questionnaires (OCAQ) scores. The expectation is that Class 95-96 OCAQ post-intervention scores will not be significantly different from Class 96-97's OCAQ scores after the intervention of attending ACSC. Scores should be equivalent because both classes are selected the same way, show no confounding demographic differences and have completed the same curriculum.

Results of the OCAQ analysis refute the control prediction. OCAQ scores for the Class 96-97 post-intervention showed a significant increase (at the .01 level) over those of ACSC Class 95-96 post-intervention class (Tables 34-38). Significant differences ($p<0.001$) existed for all five scales of the OCAQ: Managing Change, Achieving Goals, Coordinated Teamwork, Customer Orientation, and Cultural Strength. OCAQ Demographics showed no significant differences (Appendix D).

Cronbach's α scores (Table 33) showed very strong internal validity for both Class 95-96 (from 0.613 to 0.802) and Class 96-97 (from 0.702 to 0.738). The factor analysis solution consisted of five factors, which supported but did not map precisely against the five OCAQ scales. Moreover, the analysis shows that the factor structures for the two classes, while similar, may actually reflect structurally different cultures (see Table 39). Factor 1 of Class 95-96 post-intervention is inordinately large (N=353) and contains most of the matched groupings for this class. Thus, most of the items from Customer, Strength, Goals, and Teamwork, respectively, are common to Factor 1 of Class 95-96 post-intervention. These items are more equally distributed in Factor 1, 5

and 3 of the Class 96-97 post-intervention, except for the Managing Change Scale which is not represented.

Discussion

The Control, using the OCAQ, showed that Class 95-96 and Class 96-97 do not appear to be equivalent with respect to culture. The two classes show strong and significant differences (at the .01 level) in all five scales of the OCAQ: Managing Change, Achieving Goals, Coordinating Teamwork, Customer Orientation, and Cultural Strength. OCAQ Demographics showed no significant differences (Appendix D). Factor analyses showed that while the two factor structures (Class 95-96 post-intervention OCAQ scores versus Class 96-97 post-intervention OCAQ scores) were similar, they may reflect structurally different cultures due to differing distribution of the items across factors and consequent failure to replicate factors in detail between the two classes.

Respondents were directed to focus on the ACSC culture when filling out the OCAQ, so the differences may represent a changing ACSC culture. That is, there were significant differences between the two classes. Moreover, the factor analyses show substantive differences. Looking at these two results, it may be that these data reflect a major disruption in the ACSC culture (95-96), followed by the ACSC culture returning to one that is more stable (96-97) but is also more characteristic of the traditional, hierarchical Air Force culture.

This interpretation it is congruent with speculation that the shift in commandants over the period of the study had an impact on the respondents' view of their environment. The significant increase in OCAQ scores in all five scales makes sense

when considering that Class 95-96 had an interim commandant, representing a less stable condition than Class 96-97 had with its permanent commandant. Though both classes saw consistent reward in their commandant's promotion to general officer status, Class 96-97 was measured after both Brooks and Drennan were promoted. Thus, only Class 96-97 observed the continuity of rewarding two consecutive commandants after the non-promotion of Warden, the visionary leader. Thus, the factor analyses show an ACSC culture that is moving toward more stability and, potentially, a more traditional Air Force hierarchy.

Synthesis Discussion

- Hypothesis One was supported. ACSC Class 95-96 pre-intervention compared with post-intervention as well as ACSC Class 96-97 pre-intervention compared with post-intervention showed an increase in both transactional and transformational TLP scores. Simple alpha change was evident in that both classes were responding to the curriculum.
- Hypothesis Two was partially supported. ACSC Class 94-95 one year post-intervention compared with two years post-intervention showed a significant increase for transformational behavior scores but not for transactional behavior or transformational characteristics scores. ACSC Class 95-96 post-intervention compared with one year post-intervention showed no increase in scores. ACSC Class 94-95 possibly showed beta change while ACSC Class 95-96 showed simple alpha change. These findings are consistant with Sashkin's assertion (1995, 1996a, 1996d, 1996e, 1996f) that transformational leaders build cultures that effect change in the

participants over time. Further, exposure to both the transformational leader and curriculum results in continued individual improvement after the intervention, while exposure to the transformational curriculum alone may not.

- Hypothesis Three was fully supported. There was no significant difference between ACSC Class 94-95 one year post-intervention and Class 95-96 one year post-intervention or between ACSC Class 95-96 post-intervention and Class 96-97 post-intervention. One-fourth of the Class 94-95 respondents made unsolicited comments reflecting positively on their experience and leadership learning. This supports the suggestion in Hypothesis Two, that exposure to both the transformational leader and curriculum resulted in continued individual improvement after the intervention, while exposure to the curriculum alone did not.
- The Control test for equivalence was not supported. ACSC Class 95-96 OCAQ scores were significantly different from ACSC Class 96-97 however, demographic analysis showed no significant difference between samples. Findings are congruent with speculation that the shift in commandants over the period of the study had an impact on the respondents' view of their environment. Findings support Hypotheses Two and Three conclusions that transformational leaders build cultures that enable followers to continue their development as leaders even after followers are no longer exposed to the transformational leader. Thus, exposure to both the transformational leader and the training curriculum resulted in continued improvement after the intervention, while those exposed to the curriculum alone showed no such subsequent improvement.

Limitations of the Study

Participant self-selection, sampling techniques, self-report, and mortality were identified as limitations to the study. Since completing the questionnaires was voluntary, participant self-selection was a limitation as it was ultimately up to the participants whether they would complete and submit the questionnaires. Sampling techniques differed between pre- and post-intervention testing and one-and two-year out testing. In the former, participants received and completed the questionnaires at ACSC in their seminars. After graduating ACSC, they received the questionnaires by mail. Locating the participant after graduation from ACSC proved to be a problem, as many individuals whose assignments changed had new addresses that were not reflected in the ACSC database. Because the study used self-report questionnaires, method variance is a possible limitation. Finally, fewer members from each class responded by completing and returning the TLP and OCAQ for each subsequent administration. Mortality resulted from change of address due to reassignment or relocation, failure in mail being forwarded from temporary addresses, resignation from the service, and death.

Generalizability was also a limiting factor in two ways. First, because the study used only one Department of Defense military school (specifically U. S. Air Force), there is question as to generalizability to other uniformed services. Second, the study focused specifically on military respondents, which limits generalizability to civilian organizations. The issues, however, do have general and broad applicability not only to other military schools and institutions but to civilian organizations engaged in training.

Participant self-selection was addressed by distributing questionnaires to every member of each ACSC class population for each administration. Method variance was managed by including a visual guide for the TLP and the OCAQ depicting how to fill out the questionnaires. Mortality was an issue primarily for those surveys that were mailed. Generalizability was addressed by considering that the military is integrating civilian and corporate procedures in training. Additionally, corporations are integrating training programs similar to ACSC. For example IBM, Sony and Xerox all have programs similar to, though not as long in duration as, ACSC

Implications for Future Research

Based on the findings and insights gained from this research project, there are several implications for future research. The implication that the commandant under which each class experienced the intervention of ACSC significantly influenced TLP and OCAQ scores draws research attention specifically to the visionary leader. This study lends support to Sashkin's (Sashkin & Rosenbach, 1993) position that a leader's behavior is a function of the person and the situation. However, its findings more specifically support Sashkin's (1996a) inference that visionary leadership requires the visionary leader at the helm allowing the respondent to transfer behaviors from the learning environment to the job. Additional research should be conducted to ascertain the impact of the presence of the visionary leader on the participants' adopting, maintaining and strengthening the changes affected by the culture that the leader has built.

A second related issue supports the notion of visionary leadership as constructing a culture (Sashkin, 1996d) that has impact on individuals even after they've left the

culture. All classes in this study shared the same intervention, demographics, curriculum and environment, but differed in leadership. This proved a key variable and builds validation for Sashkin's proposal that a highly transformational and transactional leader, a visionary leader, has the potential to construct an organizational culture that supports, sustains, and directs organizational action over time and that this culture enables the organization to achieve goals, as opposed to authority or sanctions (Sashkin, 1996a, 1996b). Research is needed to explore whether the culture built by a visionary leader is in any way transferable to a subsequent leader and, if so, what are the most effective ways in which this could be achieved.

Based on the findings of this study, there is ample opportunity to advance organizational culture-related research. The question remains whether the ACSC culture is reflective or dichotomous in relation to the Air Force culture overall. The scope of this study did not permit exploration into the influence of concurrently operating cultures on each other. Research could pursue this issue on military, academic and corporate grounds.

The review of literature revealed a dearth of research into the question of whether military leadership programs make any impact at all upon group or individual leadership behaviors and/or characteristics. While studies exist regarding leadership instruments' scores as predictors of future leaders' success (Avolio, et. al., 1996), there was next to nothing about whether these military service-styled "leadership" programs produced any measurable change in the participants. This longitudinal study should be continued and expanded. Further, other military institutions involved in leadership training must launch

longitudinal research that asks the hard question: What measurement tells us that these leadership training programs are worth the tax dollars they cost?

Additionally, the issue between what is taught (ACSC) and what the dominant culture (the U.S. Air Force) envisions and rewards must be examined. In most cases, the dominant culture wins and dictates what it will integrate. Taken this way, it is not so much what is taught but whether individuals deem as useful to carry what is learned from the classroom into a somewhat unaccepting operational environment. As best stated by Jacobs (E-mail communication, April 7, 1998):

> Thus, the issue is not whether the teaching is effective, but rather ecology. If what is taught does not have survival value, for whatever reason, it will not survive... Classical theory suggests either improving the classroom, or intervening in the culture to improve acceptance. A somewhat different way might be to increase the intrinsic value of the practice, as may (as may have happened at ACSC under Warden), so that the lack of acceptance by the dominant culture becomes a more affordable cost. (p. 1)

If this is the case, then senior Air Force leadership must look at the integration of professional military education into the operational environment to a greater extent than ever before, to include both formal and informal messages to the student by the nature of each action taken as well as each lesson taught. Such action would go a long way in explaining the impact of the presence of the visionary leader and subsequent class differences as found in this study.

Finally, we cannot stress enough the need for future research before the major change event occurs. While this study obtained significant findings, i.e., that training makes a difference, and possibly so does the presence of the transformational leader, a tremendous opportunity to investigate the program from its conception was lost because data collection did not begin until well into the organization's change.

Recommendations

Recommendations for Air Command and Staff College's leadership training program must be centered around three specific areas: curriculum, continuing the change culture, and the function of instructors returning to ACSC following completion of doctoral work.

Curriculum

Curriculum revision should reflect a core curriculum and a specialized curriculum based on electives. The core curriculum should focus on the organizational structure of not only the flying role of the United States Air Force (USAF) but its research, reconnaissance, deployment, and support functions as well. In light of the changes to the USAF caused by the end of the cold war, advanced technology, and massive reorganization, future commanders will need how these organizational structures work. With USAF doctrine skewed to airpower tactics and principles, lack of knowledge in the field concerning how the USAF did function, is functioning, and can function is reaching critical levels. Knowledge of organizational structures and functions can only enhance graduates' capacity to function and adapt as commanders in these changing times. Organizational literacy will also build the foundation for increased joint compatibility.

Electives would provide minor fields in which the ACSC students can specialize. This would increase personal interest on the part of the students and allow them to build linkages between the core classes and their respective elective interests. Electives would be taught by the instructors returning to ACSC following completion of doctoral work. Ideally this would lead to a grasp of the synthesis between the greater role of the USAF, its function based on organizational structure, and each student's personal meaning schema. A functional based, visionary leader could be the result.

Continuing the Change Culture

Senior leadership must plan strategically for the long term transition of power and leadership. In other word, they need to look further than one commandant down the line. The same approach needs to be taken with instructors at ACSC. The current system does not permit spin-up time and saddles both the commandant and the instructors with management and administrative duties. This pulls them away from their true mission, which is to build the commanders of tomorrow.

In order to accomplish this, senior Air Force leaders must understand that how leadership is transferred has a significant impact on the individuals attending ACSC and subsequently on its culture. Past interest in ACSC has been limited to changes to the institution to better align it with the new needs of the Air Force. Scant senior leadership attention has been paid to the long-term vision of ACSC and how it aligns with the projected USAF future. In other words, most of the activity has been on building ACSC as an institution, not on sustaining the culture once the desired effect has been achieved.

The result is that ACSC is not shaping the Air Force future. At best, it is keeping pace with change.

This is not to say that the current leadership have not made contributions in the standardization of culture via the curriculum. It is to say that little attention has been paid to the informal actions that the students attribute meaning to. As a profession, a shared "big picture" is vital -- even if it depicts possible changes. Further this picture should be in agreement with both the actions taken that affect ACSC and the words that are used in implementing that action. When actions do not match words in an environment that does not share a unified long-term vision (to include transitions), the result is not leadership, but followers that at best maintain the status quo. This is a vital concern because ACSC is that pivotal point in an officer's career where service standards that motivate organizational dedication can be strengthened to eclipse the needs of the individual at the survival level.

Function of Instructors Returning to ACSC Following Completion of Doctoral Work

ACSC must use instructors who have returned with their ACSC-sponsored doctorate to maximize both curriculum refinement and continuing the change culture. Based on the two previous recommendations, those returning instructors not only teach the needed electives (as well as core curriculum) but bring in new information and fresh ideas to be integrated by ACSC. For this reason, leadership at ACSC must insure quality individuals are selected, including individuals who may not necessarily fit the mold of the existing ACSC culture.

ACSC leadership, to whom these selected individuals answer, must be highly involved with their education to insure that selected individuals attend the widest possible variety of schools noted for excellence in their field. Pinching pennies in this area will reduce both the quality and quantity of individuals wanting to participate in the program. Finally leadership at ACSC must actively invest time in the promotion of these individuals so that the education track is not a career dead end.

Depending on how the ACSC leadership (to include the returning doctoral instructors) actively promote and nurture the program, ACSC has the promise of producing individuals such as General George C. Marshall. His tour as an Army instructor not only prepared him to be the conceptual strategist of World War II, but by his hand he prepared the majority of flag officers famed in that conflict. If ACSC leadership resorts to management alone, the results will most likely repeat the similar post-Vietnam ACSC program, where returning doctoral instructors left military service for greater challenges in the civilian sector or were ousted by force reductions.

Conclusion

This study explored the question "Does training make a difference?" using Sashkin's Visionary Leadership Theory as applied to a certificated military leadership school, Air Command and Staff College. Using a recurrent institutional cycle design, we examined three classes over a three-year period to determine the effect of a transformational educational intervention immediately after the intervention and one and two years later. While it is not within the parameters of this study to determine whether group changes were caused by the original architect and transformational leader of the

program, findings of this longitudinal study provide some support to Sashkin's Visionary Leadership Theory. That is, the results show that a leadership development curriculum based on transformational leadership can, in all likelihood, result in significant increases in leadership assessment scores after the training intervention. Moreover, these findings suggest that exposure to the transformational leader as well as to an organizational culture and a training curriculum supportive of and focused on transformational leadership results in continued increases in assessed leadership scores, measured one and two years after the intervention, while exposure to the transformational curriculum and culture alone do not appear to produce such continuing effects.

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APPENDIX A

Definition of Terms

Definition Of Terms

Leadership: Leadership is the ability to develop long-range visions of what a leader's organization can and should become and motivate his or her followers toward self ownership of that vision. The leader understands the key elements of a vision to direct the organization into the future. The leader can communicate his or her vision in ways that are compelling and in ways that make people want to buy into the vision and help make it happen (Sashkin, 1986). Sashkin's (1996a, 1996b) Visionary Leadership Theory consist of three dimensions of ten scales (Sashkin, 1994).

Transactional Leadership

- Capable Management: How well the leader accomplishes the day-to-day basic administrative or managerial tasks that are necessary for any group or organization to function well in the short term.
- Reward Equity: The degree to which transactional leaders make clear and explicit their goals and performance expectations, and how well they deliver on the rewards they promise for good performance and goal accomplishment.

Transformational Leadership Behavior

- Communications Leadership: The ability to manage and direct the attention of others through especially clear and focused interpersonal communication.
- Credible Leadership: A leader's perceived integrity.
- Caring Leadership: The degree to which a leader demonstrates respect and concern for others.

- Creative Leadership: The ability and willingness to take risks and create opportunities.

Transformational Leadership Characteristics

- Confident Leadership: The basic sense of self-assurance.
- Follower-Centered Leadership: The degree to which the leader sees, followers as empowered partners and not as pawns to be manipulated.
- Visionary Leadership: The ability to define and express clearly a future for the group or organization through vision.
- Principled Leadership: The ability to develop and support shared values and beliefs among group members

ACSC Academic Year: The period of time that each ACSC class is attending in residence, normally ten months from September to June of any given year.

APPENDIX B

Biographical Sketch

BRAD D. LAFFERTY

Born in Port Huron, Michigan

B.G.S. May 1976, The Ohio University

M.A. December 1978, Arizona State University

M.S. June 1993, School of Advanced Airpower Studies, Air University

Transportation Logistics Planner, Transportation Plans Division, HQ Strategic Air Command, Offutt AFB NE, 1980-1981

Staff Airlift Officer, Transportation Plans Division, HQ Strategic Air Command, Offutt AFB NE, 1981-1982

Contingency Plans and Exercises Officer & Chief, Current Operations Branch Logistics Plans Division, HQ Strategic Air Command, Offutt AFB NE, 1982-1984

Resource Plans Officer & Chief of Mobility, 8th Tactical Fighter Wing, Kunsan AB ROK, 1984-1985

Chief. Aircraft, Modernization & Logistics Plans Officer, Hq Tactical Air Command, Langley AFB VA, 1985-1987

Chief, Logistics Plans Division, 3d Air Division (PACAF), Hickam AFB HI/Andersen AFB Guam,1987-1990

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RESEARCH TOOL FIELD COMPLETED: June 1997

TIME IN PREPARATION: 1995-1998

COMPREHENSIVE EXAMINATION PASSED: May 1997

APPENDIX C

Factor Analysis Tables

Factor Analysis, ACSC Class 95-96, Pre-Intervention TLP Administration

Question	Scale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q39	Visionary Leadership	**0.700**	0.161	-0.051	0.016	0.294
Q27	Confident Leadership	**0.686**	0.121	0.049	0.162	0.115
Q23	Communications Leadership	**0.641**	0.180	-0.041	0.082	0.139
Q40	Principled Leadership	**0.590**	-0.020	-0.085	0.112	0.335
Q7	Confident Leadership	**0.562**	0.020	-0.021	0.149	0.198
Q41	Capable Management	**0.532**	0.131	-0.057	0.034	0.587
Q13	Communications Leadership	**0.512**	0.196	0.061	0.310	0.289
Q50	Principled Leadership	**0.502**	0.173	-0.099	0.296	0.115
Q25	Caring Leadership	0.070	**0.771**	-0.002	0.094	0.190
Q15	Caring Leadership	0.188	**0.670**	0.055	0.233	0.239
Q22	Reward Equity	0.157	**0.652**	0.052	0.191	0.145
Q33	Communications Leadership	0.161	**0.550**	-0.106	-0.031	0.201
Q18	Follower-Centered Leadership	-0.043	0.072	**0.797**	-0.072	-0.017
Q8	Follower-Centered Leadership	-0.067	-0.053	**0.760**	0.181	0.013
Q44	Credible Leadership	0.120	0.213	0.021	**0.701**	0.176
Q14	Credible Leadership	0.346	0.164	0.053	**0.672**	0.158
Q24	Credible Leadership	0.082	0.161	0.090	**0.614**	0.051
Q4	Credible Leadership	0.110	-0.010	-0.009	**0.545**	-0.015
Q34	Credible Leadership	0.381	0.099	0.066	**0.512**	0.257
Q36	Creative Leadership	0.240	0.121	-0.005	0.067	**0.648**
Q42	Reward Equity	0.232	0.190	-0.129	0.096	**0.646**
Q46	Creative Leadership	0.197	0.194	0.048	0.155	**0.587**
Q16	Creative Leadership	0.257	0.233	-0.084	0.022	**0.586**
Q21	Capable Management	0.116	0.115	0.021	0.204	**0.570**
Q29	Visionary Leadership	0.394	0.108	-0.052	0.159	**0.570**
Q45	Caring Leadership	0.123	0.392	0.022	0.139	**0.567**
Q48	Follower-Centered Leadership	0.201	0.135	0.147	0.226	**0.507**
Q37	Confident Leadership	0.372	-0.006	0.016	0.150	0.158
Q47	Confident Leadership	0.192	-0.035	-0.047	0.336	0.213
Q5	Caring Leadership	-0.038	0.125	0.043	0.180	0.180
Q3	Communications Leadership	0.188	0.181	0.100	-0.047	0.105
Q19	Visionary Leadership	0.062	0.064	0.481	-0.039	-0.107
Q20	Principled Leadership	0.078	0.071	-0.131	0.178	0.132
Q6	Creative Leadership	0.261	0.198	0.003	0.057	0.488
Q1	Capable Management	0.313	0.089	0.080	0.183	0.284
Q2	Reward Equity	0.106	0.378	0.052	0.004	0.256
Q12	Reward Equity	0.144	0.372	0.022	0.165	0.406
Q9	Visionary Leadership	0.363	0.094	-0.115	0.045	0.347
Q10	Principled Leadership	0.139	0.104	-0.215	0.144	0.385
Q11	Capable Management	0.344	0.207	0.020	0.178	0.410
Q30	Principled Leadership	0.222	0.261	0.062	0.226	0.350
Q43	Communications Leadership	0.455	0.083	0.078	0.126	0.196
Q32	Reward Equity	0.197	0.370	-0.073	-0.034	0.388
Q49	Visionary Leadership	0.464	0.080	-0.170	0.296	0.134
Q35	Caring Leadership	-0.023	0.404	0.003	0.282	0.181
Q26	Creative Leadership	0.346	0.351	0.050	0.208	0.383
Q31	Capable Management	0.223	0.363	0.025	0.099	0.400
Q38	Follower-Centered Leadership	0.361	-0.024	-0.348	-0.132	0.245
Q28	Confident Leadership	0.365	0.026	-0.196	0.087	0.346
Q17	Confident Leadership	0.392	0.121	-0.110	0.282	0.307

Factor Analysis, ACSC Class 95-96, Pre-Intervention TLP Administration -- Continued

Question	Scale	Factor 6	Factor 7	Factor 8	Factor 9	Factor 10
Q39	Visionary Leadership	0.060	0.031	0.103	0.094	0.146
Q27	Confident Leadership	0.212	0.048	-0.076	0.122	0.120
Q23	Communications Leadership	0.100	0.067	-0.014	0.152	0.165
Q40	Principled Leadership	0.089	0.061	0.150	0.049	-0.112
Q7	Confident Leadership	0.107	0.057	0.042	0.032	0.341
Q41	Capable Management	0.024	0.084	0.001	-0.065	0.022
Q13	Communications Leadership	0.133	0.029	-0.115	0.111	0.074
Q50	Principled Leadership	0.117	0.081	0.219	-0.182	0.119
Q25	Caring Leadership	-0.050	0.203	0.064	0.036	-0.010
Q15	Caring Leadership	-0.046	0.082	0.101	-0.012	0.095
Q22	Reward Equity	0.105	0.013	-0.062	0.085	0.252
Q33	Communications Leadership	0.045	0.427	-0.046	0.098	-0.020
Q18	Follower-Centered Leadership	0.019	0.082	0.062	-0.009	0.009
Q8	Follower-Centered Leadership	0.022	0.013	0.041	-0.085	0.036
Q44	Credible Leadership	0.111	-0.008	0.036	0.075	0.101
Q14	Credible Leadership	-0.029	-0.024	-0.071	0.104	0.031
Q24	Credible Leadership	0.097	0.139	0.031	0.428	-0.049
Q4	Credible Leadership	0.265	0.214	0.011	0.074	0.351
Q34	Credible Leadership	0.139	0.135	0.013	-0.111	0.015
Q36	Creative Leadership	0.192	0.162	-0.021	0.092	0.114
Q42	Reward Equity	0.291	0.033	0.124	0.035	0.068
Q46	Creative Leadership	0.214	0.058	0.058	0.015	0.195
Q16	Creative Leadership	0.024	0.090	-0.092	0.092	0.250
Q21	Capable Management	-0.146	0.118	-0.126	0.177	0.317
Q29	Visionary Leadership	0.128	0.110	-0.042	0.172	-0.028
Q45	Caring Leadership	0.158	0.156	0.042	-0.026	-0.015
Q48	Follower-Centered Leadership	0.086	0.155	0.350	0.050	0.059
Q37	Confident Leadership	**0.602**	0.064	-0.034	0.007	0.148
Q47	Confident Leadership	**0.559**	0.095	0.026	-0.050	0.058
Q5	Caring Leadership	0.005	**0.696**	0.085	0.005	0.199
Q3	Communications Leadership	0.095	**0.685**	-0.043	0.169	0.014
Q19	Visionary Leadership	-0.133	-0.014	**0.625**	-0.043	-0.042
Q20	Principled Leadership	0.038	0.113	-0.054	**0.666**	0.133
Q6	Creative Leadership	0.139	0.104	-0.016	0.121	**0.522**
Q1	Capable Management	0.059	0.146	0.023	0.020	**0.501**
Q2	Reward Equity	0.426	0.067	0.079	0.214	**0.474**
Q12	Reward Equity	0.306	-0.111	-0.048	0.220	0.405
Q9	Visionary Leadership	-0.158	0.272	-0.062	-0.047	0.342
Q10	Principled Leadership	0.038	0.269	0.183	0.196	0.239
Q11	Capable Management	0.167	0.240	-0.182	0.019	0.191
Q30	Principled Leadership	0.174	0.409	-0.136	0.098	-0.136
Q43	Communications Leadership	0.415	0.078	-0.070	0.202	-0.136
Q32	Reward Equity	0.390	0.063	-0.130	0.173	0.101
Q49	Visionary Leadership	0.131	0.046	0.345	-0.092	0.076
Q35	Caring Leadership	0.192	0.363	0.122	-0.136	0.069
Q26	Creative Leadership	-0.142	0.104	-0.119	0.336	0.061
Q31	Capable Management	0.371	0.122	-0.037	0.304	0.044
Q38	Follower-Centered Leadership	0.154	-0.013	0.324	0.363	0.043
Q28	Follower-Centered Leadership	0.252	0.098	0.231	0.339	0.041
Q17	Confident Leadership	0.142	0.051	-0.278	0.047	0.018

Factor Analysis, ACSC Class 95-96, Post-Intervention TLP Administration

Question	Scale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q25	Caring Leadership	**0.791**	0.169	0.106	0.163	0.044
Q15	Caring Leadership	**0.780**	0.098	0.115	0.266	-0.015
Q33	Communications Leadership	**0.582**	0.055	0.172	0.163	0.015
Q45	Caring Leadership	**0.575**	0.118	0.272	0.347	0.023
Q24	Credible Leadership	0.096	**0.785**	0.190	0.135	0.079
Q4	Credible Leadership	0.064	**0.753**	0.152	0.187	-0.094
Q14	Credible Leadership	0.053	**0.734**	0.212	0.196	-0.102
Q44	Credible Leadership	0.207	**0.714**	0.148	0.133	-0.036
Q27	Confident Leadership	0.237	0.205	**0.640**	0.274	0.009
Q29	Visionary Leadership	0.108	0.080	**0.627**	0.425	-0.084
Q43	Communications Leadership	0.186	0.143	**0.619**	0.109	0.013
Q39	Visionary Leadership	0.266	0.049	**0.617**	0.370	0.068
Q17	Confident Leadership	0.128	0.175	**0.599**	0.228	0.272
Q7	Confident Leadership	0.182	0.248	**0.572**	0.362	0.084
Q23	Communications Leadership	0.223	0.268	**0.561**	0.164	0.042
Q37	Confident Leadership	0.062	0.312	**0.550**	0.040	-0.061
Q49	Visionary Leadership	0.032	0.103	**0.546**	-0.011	0.038
Q2	Reward Equity	0.070	0.204	0.153	**0.716**	-0.028
Q1	Capable Management	0.066	0.213	0.069	**0.713**	0.048
Q11	Capable Management	0.112	0.193	0.194	**0.692**	0.013
Q21	Capable Management	0.153	.0.057	0.054	**0.655**	0.114
Q46	Creative Leadership	0.256	0.039	0.163	**0.613**	0.071
Q6	Creative Leadership	0.354	0.103	0.265	**0.604**	0.027
Q12	Reward Equity	0.288	0.167	0.273	**0.597**	-0.057
Q16	Creative Leadership	0.347	0.009	0.380	**0.586**	0.047
Q41	Capable Management	0.224	-0.036	0.484	**0.512**	0.084
Q18	Follower-Centered Leadership	-0.011	0.000	-0.021	-0.020	**-0.822**
Q8	Follower-Centered Leadership	0.026	0.129	-0.028	-0.059	**-0.740**
Q35	Caring Leadership	0.370	0.238	0.112	0.104	-0.062
Q29	Follower-Centered Leadership	0.076	0.065	0.229	0.276	0.111
Q38	Follower-Centered Leadership	0.036	-0.001	0.238	0.137	0.344
Q19	Visionary Leadership	-0.173	-0.047	-0.155	-0.025	-0.383
Q3	Communications Leadership	0.192	0.117	-0.019	0.208	-0.100
Q5	Caring Leadership	0.367	0.140	0.250	0.154	0.069
Q47	Confident Leadership	0.015	0.288	0.228	0.027	-0.004
Q10	Principled Leadership	0.264	0.077	0.250	0.290	0.188
Q34	Credible Leadership	0.302	0.461	0.301	0.264	-0.058
Q22	Reward Equity	0.476	0.099	0.160	0.315	-0.135
Q13	Communications Leadership	0.211	0.233	0.387	0.415	-0.024
Q31	Capable Management	0.407	0.131	0.177	0.445	-0.027
Q40	Principled Leadership	-0.105	-0.013	0.463	0.247	0.016
Q9	Visionary Leadership	0.334	0.043	0.239	0.391	0.149
Q42	Reward Equity	0.292	0.071	0.425	0.443	-0.001
Q36	Creative Leadership	0.335	0.211	0.357	0.344	0.172
Q50	Principled Leadership	0.083	0.219	0.496	0.156	-0.135
Q30	Principled Leadership	0.261	0.246	0.239	0.305	0.004
Q26	Creative Leadership	0.425	0.054	0.378	0.348	-0.009
Q32	Reward Equity	0.434	0.135	0.325	0.416	0.065
Q48	Follower-Centered Leadership	0.217	0.119	0.197	0.262	-0.095
Q20	Principled Leadership	0.344	0.094	0.256	0.077	0.011

Factor Analysis, ACSC Class 95-96, Post-Intervention TLP Administration -- Continued

Question #	Scale	Factor 6	Factor 7	Factor 9	Factor 9	Factor 10
Q25	Caring Leadership	0.112	0.056	0.010	0.157	-0.055
Q15	Caring Leadership	0.011	-0.030	0.104	0.081	0.095
Q33	Communications Leadership	0.058	0.155	0.251	0.385	-0.109
Q45	Caring Leadership	0.263	0.186	-0.084	0.080	0.248
Q24	Credible Leadership	0.164	0.007	-0.038	0.082	-0.028
Q4	Credible Leadership	-0.158	0.078	0.076	0.101	0.146
Q14	Credible Leadership	0.033	0.009	0.294	0.050	0.174
Q44	Credible Leadership	0.186	0.060	-0.184	0.118	0.029
Q27	Confident Leadership	-0.095	0.294	-0.087	0.015	0.056
Q29	Visionary Leadership	0.208	0.128	0.021	0.101	-0.009
Q43	Communications Leadership	0.299	0.161	0.202	0.018	0.179
Q39	Visionary Leadership	0.011	0.222	0.124	-0.013	0.046
Q17	Confident Leadership	0.067	-0.014	-0.081	0.080	-0-129
Q7	Confident Leadership	-0.207	0.004	0.044	0.033	0.168
Q23	Communications Leadership	0.020	0.204	0.152	0.004	-0.001
Q37	Confident Leadership	0.074	0.206	-0.019	-0.035	0.349
Q49	Visionary Leadership	0.154	-0.048	0.041	0.219	0.214
Q2	Reward Equity	0.094	0.064	0.064	0.026	-0.045
Ql	Capable Management	0.019	0.129	-0.066	0.049	-0.157
Q11	Capable Management	-0.083	-0.058	0.182	0.232	0.076
Q21	Capable Management	0.321	0.127	0.025	0.097	0.148
Q46	Creative Leadership	0.258	0.201	0.032	0.065	0.228
Q6	Creative Leadership	-0.103	0.134	-0.094	0.154	0.112
Q12	Reward Equity	-0.070	0.170	0.057	0.039	0.133
Q16	Creative Leadership	-0.049	0.123	-0.118	0.190	-0.046
Q41	Capable Management	0.264	0.176	0.105	0.072	0.077
Q18	Follower-Centered Leadership	-0.102	-0.017	-0.041	0.028	-0.007
Q8	Follower-Centered Leadership	0.145	-0.174	-0.094	0.012	-0.014
Q35	Caring Leadership	**0.602**	-0.004	-0.075	0.229	0.083
Q28	Follower-Centered Leadership	0.076	**0.721**	0.058	0.052	-0.024
Q38	Follower-Centered Leadership	-0.003	**0.659**	0.105	-0.077	0.218
Q19	Visionary Leadership	0.011	-0.128	**-0.617**	-0.102	0.105
Q3	Communications Leadership	0.077	0.004	0.293	**0.672**	0.254
Q5	Caring Leadership	0.145	-0.048	-0.159	**0.507**	-0.003
Q47	Confident Leadership	0.130	0.138	-0.048	0.195	**0.665**
Q10	Principled Leadership	-0.059	-0.165	-0.089	0.149	0.348
Q34	Credible Leadership	0.169	0.016	0.210	-0.137	0.292
Q22	Reward Equity	0.343	0.062	0.137	-0.024	0.232
Q13	Communications Leadership	0.197	-0.018	0.287	-0.020	0.201
Q31	Capable Management	0.317	0.129	0.045	0.111	0.186
Q40	Principled Leadership	0.399	0.108	0.277	0.246	0.164
Q9	Visionary Leadership	-0.216	0.120	0.038	0.300	0.136
Q42	Reward Equity	0.209	0.136	0.192	0.101	-0.123
Q36	Creative Leadership	0.326	0.079	0.068	0.216	-0.112
Q50	Principled Leadership	-0.147	0.258	0.069	0.193	0.106
Q30	Principled Leadership	0.317	0.140	-0.078	0.440	0.087
Q26	Creative Leadership	0.008	0.315	-0.033	0.144	-0.082
Q32	Reward Equity	0.126	0.079	0.246	-0.009	0.081
Q48	Follower-Centered Leadership	0.221	0.437	-0.039	0.393	-0.009
Q20	Principled Leadership	-0.054	0.340	0.320	0.064	0.00

Factor Analysis, ACSC Class 96-97, Pre-Intervention TLP Administration

Question	Scale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q49	Visionary Leadership	**0.699**	0.043	0.146	-0.007	-0.025
Q41	Capable Management	**0.659**	0.215	0.118	-0.176	0.113
Q29	Visionary Leadership	**0.645**	0.085	0.165	0.049	0.221
Q42	Reward Equity	**0.567**	0.335	0.144	-0.235	0.225
Q39	Visionary Leadership	**0.553**	0.192	0.004	-0.108	0.131
Q43	Communications Leadership	**0.524**	0.145	0.138	0.019	0.269
Q40	Principled Leadership	**0.518**	0.071	0.178	0.013	0.019
Q25	Caring Leadership	0.026	**0.788**	0.061	0.065	0.098
Q33	Communications Leadership	0.082	**0.785**	0.098	-0.063	0.106
Q15	Caring Leadership	0.107	**0.624**	0.078	0.043	0.310
Q45	Caring Leadership	0.323	**0.616**	0.146	-0.107	0.168
Q2	Communications Leadership	0.054	**0.575**	0.387	0.042	0.064
Q30	Principled Leadership	0.084	**0.514**	0.191	0.206	0.310
Q24	Credible Leadership	0.140	0.169	**0.779**	0.023	0.166
Q14	Credible Leadership	0.157	0.088	**0.762**	0.078	0.226
Q44	Credible Leadership	0.037	0.182	**0.750**	0.116	0.073
Q4	Credible Leadership	0.157	0.100	**0.714**	-0.003	0.080
Q34	Credible Leadership	0.102	0.238	**0.515**	-0.028	0.146
Q18	Follower-Centered Leadership	-0.101	0.128	0.039	**0.776**	0.022
Q8	Follower-Centered Leadership	0.020	0.030	0.131	**0.694**	0.002
Q2	Reward Equity	0.057	0.189	0.303	-0.007	**0.685**
Q12	Reward Equity	0.213	0.191	0.214	-0.031	**0.684**
Q22	Reward Equity	0.053	0.391	0.169	0.130	**0.553**
Q32	Reward Equity	0.289	0.377	0.100	-0.114	**0.538**
Q50	Principled Leadership	0.327	0.049	0.085	0.095	-0.078
Q47	Confident Leadership	0.098	0.204	0.342	-0.093	-0.013
Q27	Confident Leadership	0.207	0.069	0.174	0.016	0.177
Q7	Confident Leadership	0.173	-0.053	0.155	0.006	0.195
Q17	Confident Leadership	0.107	0.158	0.158	-0.183	0.270
Q10	Principled Leadership	0.119	0.230	0.168	-0.047	0.050
Q9	Visionary Leadership	0.034	0.212	0.101	-0.124	0.185
Q28	Follower-Centered Leadership	0.157	0.102	0.071	-0.064	0.142
Q38	Follower-Centered Leadership	0.227	0.040	-0.020	-0.375	-0.029
Q1	Capable Management	0.071	0.108	0.200	-0.008	0.156
Q21	Capable Management	0.370	0.231	0.180	0.099	0.237
Q11	Capable Management	0.282	0.137	0.335	0.086	0.273
Q46	Creative Leadership	0.281	0.427	0.158	0.034	0.263
Q37	Confident Leadership	0.222	0.037	0.334	-0.031	0.094
Q36	Creative Leadership	0.384	0.355	0.247	-0.067	0.186
Q35	Caring Leadership	0.065	0.431	0.407	0.217	0.005
Q31	Capable Management	0.197	0.388	0.099	0.102	0.487
Q5	Caring Leadership	-0.017	0.462	0.192	0.195	0.009
Q6	Creative Leadership	0.224	0.205	0.201	-0.132	0.396
Q19	Visionary Leadership	-0.087	-0.128	-0.131	0.246	-0.198
Q22	Communications Leadership	0.323	0.035	0.098	0.053	0.310
Q20	Principled Leadership	0.241	0.310	0.142	0.004	-0.056
Q48	Follower-Centered Leadership	0.337	0.460	0.103	0.041	0.124
Q26	Creative Leadership	0.279	0.495	0.058	0.147	0.342
Q13	Communications Leadership	0.434	0.023	0.455	0.017	0.335
Q16	Creative Leadership	0.233	0.375	0.036	-0.081	0.319

Factor Analysis, ACSC Class 96-97, Pre-Intervention TLP Adm. -- Continued

Question	Scale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q49	Visionary Leadership	0.346	-0.067	0.043	-0.060	-0.163
Q41	Capable Management	0.087	0.236	0.021	0.193	0.229
Q29	Visionary Leadership	0.163	0.071	0.154	0.205	0.182
Q42	Reward Equity	0.062	0.065	-0.109	0.140	0.193
Q39	Visionary Leadership	0.333	0.297	0.066	0.258	0.040
Q43	Communications Leadership	0.166	-0.037	-0.030	0.350	0.086
Q40	Principled Leadership	-0.039	0.132	0.029	0.450	0.198
Q25	Caring Leadership	0.117	0.200	0.121	-0.080	0.021
Q33	Communications Leadership	0.011	0.083	0.050	-0.007	0.032
Q15	Caring Leadership	0.185	0.271	0.071	-0.004	-0.005
Q45	Caring Leadership	0.118	0.110	-0.058	0.100	0.215
Q2	Communications Leadership	-0.041	0.019	0.046	0.148	-0.010
Q30	Principled Leadership	-0.091	0.052	0.100	0.195	0.190
Q24	Credible Leadership	0.065	0.108	0.002	0.084	0.038
Q14	Credible Leadership	0.083	0.083	0.089	0.173	0.048
Q44	Credible Leadership	0.176	0.091	-0.115	-0.047	0.144
Q4	Credible Leadership	0.132	0.058	0.081	0.038	0.190
Q34	Credible Leadership	0.382	0.082	-0.030	0.028	0.110
Q18	Follower-Centered Leadership	-0.019	-0.009	-0.123	0.011	-0.019
Q8	Follower-Centered Leadership	-0.019	-0.130	0.088	-0.195	0.077
Q2	Reward Equity	-0.018	0.140	-0.205	0.017	0.108
Q12	Reward Equity	0.016	0.270	0.082	0.094	0.066
Q22	Reward Equity	0.144	-0.035	0.268	0.092	0.164
Q32	Reward Equity	0.098	0.029	0.029	0.214	0.198
Q50	Principled Leadership	**0.585**	0.079	-0.053	0.068	0.149
Q47	Confident Leadership	**0.567**	-0.192	0.023	-0.013	0.089
Q27	Confident Leadership	**0.555**	0.208	0.027	0.415	0.163
Q7	Confident Leadership	**0.527**	0.389	-0.091	0.315	0.002
Q17	Confident Leadership	**0.525**	0.149	0.189	0.187	0.118
Q10	Principled Leadership	0.049	**0.644**	0.131	0.112	0.013
Q9	Visionary Leadership	0.043	**0.612**	-0.123	0.131	0.170
Q28	Follower-Centered Leadership	0.229	0.204	-0.016	**0.688**	0.029
Q38	Follower-Centered Leadership	0.062	0.080	0.084	**0.615**	0.008
Q1	Capable Management	0.185	0.073	0.016	0.151	**0.728**
Q21	Capable Management	0.176	0.142	0.156	-0.040	**0.508**
Q11	Capable Management	0.104	0.336	0.143	0.012	0.492
Q46	Creative Leadership	0.143	-0.091	-0.215	0.170	0.454
Q37	Confident Leadership	0.421	0.034	0.129	0.275	0.357
Q36	Creative Leadership	0.092	0.182	-0.041	0.005	0.351
Q35	Caring Leadership	0.209	0.020	-0.162	-0.097	0.291
Q31	Capable Management	0.271	0.081	-0.004	0.141	0.283
Q5	Caring Leadership	0.007	0.245	-0.395	0.076	0.221
Q6	Creative Leadership	0.291	0.221	-0.304	0.026	0.192
Q19	Visionary Leadership	-0.112	0.036	-0.361	-0.317	-0.179
Q23	Communications Leadership	0.311	0.043	0.156	0.431	0.155
Q20	Principled Leadership	0.065	0.249	0.461	0.120	0.150
Q48	Follower-Centered Leadership	0.122	0.003	-0.222	0.330	0.131
Q26	Creative Leadership	0.189	0.141	-0.042	0.201	0.128
Q13	Communications Leadership	0.125	0.133	0.162	0.163	0.127
Q16	Creative Leadership	0.271	0.480	0.003	0.086	0.061

Factor Analysis, ACSC Class 96-97, Post-Intervention TLP Administration

Question	Scale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q25	Caring Leadership	**0.785**	-0.092	0.182	0.136	0.136
Q33	Communications	**0.719**	-0.014	0.100	0.080	0.285
Q15	Caring Leadership	**0.702**	-0.042	0.095	0.294	0.175
Q18	Follower-Centered Leadership	0.095	**-0.783**	0.013	-0.043	-0.094
Q8	Follower-Centered Leadership	0.021	**-0.727**	0.049	0.012	0.036
Q24	Credible Leadership	0.127	-0.105	**0.808**	0.154	0.089
Q14	Credible Leadership	0.104	-0.019	**0.766**	0.173	0.146
Q44	Credible Leadership	0.144	-0.054	**0.683**	0.132	0.090
Q4	Credible Leadership	-0.004	0.048	**0.614**	0.323	-0.068
Q34	Credible Leadership	0.152	0.079	**0.614**	0.007	0.348
Q2	Reward Equity	0.230	0.071	0.206	**0.691**	0.078
Q12	Reward Equity	0.332	0.075	0.233	**0.623**	0.318
Q6	Creative Leadership	0.060	0.022	0.132	**0.621**	0.336
Q1	Capable Management	0.052	-0.069	0.111	**0.614**	0.139
Q21	Capable Management	0.067	-0.037	0.220	**0.556**	0.375
Q11	Capable Management	0.093	0.082	0.163	**0.546**	0.260
Q41	Capable Management	0.100	0.102	0.041	0.336	**0.652**
Q42	Reward Equity	0.289	0.107	0.189	0.237	**0.619**
Q29	Visionary Leadership	0.037	0.013	0.081	0.150	**0.580**
Q30	Principled Leadership	0.178	-0.096	0.218	0.056	**0.574**
Q36	Creative Leadership	0.211	0.126	0.107	0.265	**0.570**
Q32	Reward Equity	0.408	0.074	0.239	0.265	**0.560**
Q40	Principled Leadership	0.089	-0.022	0.075	0.185	**0.559**
Q16	Creative Leadership	0.237	0.005	0.069	0.453	**0.554**
Q31	Capable Management	0.231	0.002	0.365	0.210	**0.553**
Q39	Visionary Leadership	0.118	0.051	-0.016	0.188	**0.530**
Q35	Caring Leadership	0.317	0.021	0.347	0.126	0.189
Q3	Communications	0.334	0.123	0.119	0.201	0.070
Q5	Caring Leadership	0.218	-0.145	0.088	0.338	0.177
Q20	Principled Leadership	-0.009	-0.029	0.106	0.122	0.103
Q19	Visionary Leadership	-0.140	-0.320	0.083	-0.118	-0.160
Q28	Follower-Centered Leadership	0.108	0.178	0.007	0.032	0.109
Q38	Follower-Centered Leadership	0.032	0.299	0.004	0.056	0.188
Q50	Principled Leadership	0.071	-0.056	0.120	0.213	0.195
Q49	Visionary Leadership	0.111	-0.018	0.164	0.048	0.222
Q23	Communications	0.160	0.135	0.157	0.114	0.219
Q7	Confident Leadership	0.075	0.005	0.199	0.367	0.107
Q27	Confident Leadership	0.096	0.041	0.174	0.358	0.276
Q17	Confident Leadership	0.056	0.083	0.155	0.159	0.133
Q37	Confident Leadership	-0.133	0.160	0.309	0.110	0.296
Q43	Communications	0.085	-0.041	0.102	-0.017	0.482
Q13	Communications	0.087	0.093	0.394	0.159	0.498
Q9	Visionary Leadership	0.207	0.172	-0.026	0.303	0.314
Q47	Confident Leadership	-0.033	0.051	0.375	0.141	0.225
Q45	Caring Leadership	0.389	0.017	0.124	0.252	0.370
Q26	Creative Leadership	0.301	-0.056	0.080	0.411	0.406
Q22	Reward Equity	0.382	0.039	0.336	0.426	0.314
Q48	Follower-Centered Leadership	0.066	-0.040	0.091	0.235	0.309
Q46	Creative Leadership	0.201	-0.022	0.142	0.342	0.378
Q10	Principled Leadership	0.173	0.323	0.251	0.258	0.141

Factor Analysis, ACSC Class 96-97, Post-Intervention TLP Adm. -- Continued

Question	Scale	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q25	Caring Leadership	0.209	0.042	0.080	0.006	0.048
Q33	Communications	0.198	0.070	0.083	0.076	0.028
Q15	Caring Leadership	0.166	0.024	0.010	0.105	0.129
Q18	Follower-Centered Leadership	0.026	-0.063	-0.131	0.136	-0.133
Q8	Follower-Centered Leadership	-0.018	-0.042	-0.324	-0.132	-0.025
Q24	Credible Leadership	-0.037	0.109	0.014	0.079	0.187
Q14	Credible Leadership	0.048	0.048	0.025	0.053	0.200
Q44	Credible Leadership	0.201	-0.046	-0.080	0.168	-0.023
Q4	Credible Leadership	0.152	-0.161	0.082	0.062	0.267
Q34	Credible Leadership	0.162	0.156	0.047	0.092	0.088
Q2	Reward Equity	0.057	0.019	-0.015	0.137	0.048
Q12	Reward Equity	-0.147	0.038	0.030	0.107	0.161
Q6	Creative Leadership	0.165	0.128	0.094	0.119	0.262
Q1	Capable Management	0.300	0.082	-0.043	0.184	0.237
Q21	Capable Management	0.232	0.123	0.149	-0.070	0.046
Q11	Capable Management	0.233	0.086	0.008	0.127	0.182
Q41	Capable Management	0.113	-0.007	0.110	0.363	0.096
Q42	Reward Equity	0.083	0.011	-0.021	0.244	0.052
Q29	Visionary Leadership	0.155	0.184	0.241	0.177	0.326
Q30	Principled Leadership	0.490	0.112	0.050	0.095	0.090
Q36	Creative Leadership	0.278	-0.057	-0.024	0.068	0.206
Q32	Reward Equity	-0.131	-0.045	0.114	0.126	0.053
Q40	Principled Leadership	0.115	0.239	0.104	0.057	0.156
Q16	Creative Leadership	0.008	0.112	0.108	0.107	0.260
Q31	Capable Management	0.264	0.106	-0.012	0.066	0.109
Q39	Visionary Leadership	-0.037	0.000	0.229	0.401	0.260
Q35	Caring Leadership	**0.579**	0.165	-0.011	0.078	-0.102
Q3	Communications	**0.565**	-0.037	-0.055	0.112	0.196
Q5	Caring Leadership	**0.532**	0.093	0.138	-0.046	0.177
Q20	Principled Leadership	0.120	**0.744**	0.183	0.033	0.154
Q19	Visionary Leadership	-0.009	**-0.589**	0.035	-0.096	-0.248
Q28	Follower-Centered Leadership	0.035	0.162	**0.777**	0.077	0.087
Q38	Follower-Centered Leadership	-0.034	-0.022	**0.757**	0.133	0.096
Q50	Principled Leadership	0.069	0.053	0.160	**0.559**	0.296
Q49	Visionary Leadership	0.018	0.098	0.229	**0.536**	0.229
Q23	Communications	-0.031	0.227	0.067	0.043	**0.606**
Q7	Confident Leadership	0.045	0.216	0.031	0.150	**0.592**
Q27	Confident Leadership	0.085	-0.006	0.146	0.190	**0.559**
Q17	Confident Leadership	0.142	0.127	0.047	0.316	**0.532**
Q37	Confident Leadership	0.236	-0.133	-0.015	0.155	0.492
Q43	Communications	0.128	0.098	0.077	0.143	0.440
Q13	Communications	0.004	0.095	0.073	-0.149	0.402
Q9	Visionary Leadership	0.097	0.161	0.190	0.217	0.212
Q47	Confident Leadership	0.283	-0.102	-0.069	0.475	0.211
Q45	Caring Leadership	0.417	0.041	0.029	0.339	0.204
Q26	Creative Leadership	0.349	0.043	0.110	0.020	0.167
Q22	Reward Equity	0.178	0.100	-0.035	0.015	0.098
Q48	Follower-Centered Leadership	0.276	0.284	0.377	0.334	-0.048
Q46	Creative Leadership	0.398	0.214	0.040	0.334	-0.010
Q10	Principled Leadership	-0.022	0.272	-0.321	0.379	-0.003

Factor Analysis, ACSC Class 95-96, Post-Intervention OCAQ Administration

Question	Scales	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q29	Customer Orientation	**0.746**	-0.129	0.186	0.145	-0.051
Q19	Customer Orientation	**0.737**	0.097	0.117	0.065	-0.056
Q26	Managing Change	**0.731**	0.044	0.201	0.137	0.024
Q25	Cultural Strength	**0.697**	0.019	0.196	0.153	0.102
Q22	Achieving Goals	**0.693**	0.069	0.199	0.037	-0.093
Q24	Customer Orientation	**0.681**	0.107	0.176	-0.154	-0.005
Q20	Cultural Strength	**0.671**	-0.069	0.163	-0.034	0.163
Q21	Managing Change	**0.657**	-0.062	0.177	0.081	0.171
Q28	Coordinated Teamwork	**0.648**	-0.031	0.295	0.078	0.009
Q9	Customer Orientation	**0.605**	0.243	0.338	0.144	-0.125
Q4	Customer Orientation	**0.598**	0.032	0.260	0.148	-0.176
Q18	Coordinated Teamwork	**0.580**	0.255	0.205	0.007	0.075
Q11	Managing Change	**0.562**	0.240	0.279	0.032	0.223
Q12	Achieving Goals	**0.560**	0.248	0.330	-0.161	0.043
Q30	Cultural Strength	**0.515**	-0.059	0.538	0.137	0.098
Q3	Coordinated Teamwork	0.047	**0.753**	0.061	0.156	-0.044
Q7	Achieving Goals	-0.058	**0.540**	0.084	0.310	0.282
Q8	Coordinated Teamwork	0.289	-0.022	**0.662**	-0.031	-0.019
Q2	Achieving Goals	0.300	0.138	**0.588**	0.288	-0.096
Q5	Cultural Strength	0.357	0.078	**0.584**	0.046	0.126
Q23	Coordinated Teamwork	0.376	0.065	**0.578**	-0.092	0.218
Q1	Managing Change	0.353	0.041	**0.510**	0.216	-0.058
Q15	Cultural Strength	0.101	0.009	0.074	**0.778**	0.182
Q14	Customer Orientation	0.251	0.386	0.117	**0.559**	0.092
Q27	Achieving Goals	0.156	0.303	0.054	**0.547**	0.059
Q16	Managing Change	-0.107	-0.066	0.200	0.281	**0.744**
Q6	Managing Change	0.252	0.316	-0.145	0.109	**0.614**
Q13	Coordinated Teamwork	-0.207	0.246	0.360	0.453	0.193
Q17	Achieving Goals	0.494	0.281	0.263	-0.391	0.152
Q10	Cultural Strength	0.410	0.252	0.482	0.172	-0.001

Factor Analysis, ACSC Class 96-97, Post-Intervention OCAQ Administration

Question	Scales	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5
Q30	Cultural Strength	**0.728**	0.167	0.014	0.240	0.092
Q28	Coordinated Teamwork	**0.694**	0.148	-0.010	0.242	0.253
Q26	Managing Change	**0.627**	-0.084	0.206	0.194	0.370
Q25	Cultural Strength	**0.615**	0.000	0.081	0.184	0.406
Q29	Customer Orientation	**0.590**	-0.013	0.068	0.157	0.350
Q18	Coordinated Teamwork	**0.571**	0.181	-0.075	0.438	0.223
Q10	Cultural Strength	**0.538**	0.259	-0.088	0.370	0.183
Q13	Coordinated Teamwork	-0.055	**0.754**	0.045	0.098	0.138
Q14	Customer Orientation	0.022	**0.707**	0.293	-0.013	0.191
Q3	Coordinated Teamwork	-0.007	**0.668**	0.070	0.233	-0.065
Q7	Achieving Goals	0.092	**0.667**	0.052	0.247	0.122
Q27	Achieving Goals	0.340	**0.598**	0.076	-0.027	-0.015
Q6	Managing Change	0.058	0.173	**0.725**	0.201	0.005
Q16	Managing Change	0.012	0.359	**0.669**	0.075	0.003
Q5	Cultural Strength	0.233	0.081	0.116	**0.709**	0.193
Q1	Managing Change	0.207	0.137	0.101	**0.598**	0.228
Q23	Coordinated Teamwork	0.374	0.052	0.163	**0.549**	0.219
Q8	Coordinated Teamwork	0.314	0.178	0.088	**0.533**	0.255
Q2	Achieving Goals	0.336	0.302	-0.073	**0.526**	0.317
Q19	Customer Orientation	0.185	-0.059	0.238	0.186	**0.722**
Q4	Customer Orientation	0.206	0.136	0.012	0.256	**0.673**
Q24	Customer Orientation	0.177	0.044	-0.172	0.159	**0.593**
Q20	Cultural Strength	0.488	0.069	0.128	0.084	**0.561**
Q22	Achieving Goals	0.339	0.297	-0.086	0.259	**0.541**
Q9	Customer Orientation	0.465	0.198	-0.131	0.275	0.490
Q21	Managing Change	0.482	0.027	0.205	0.259	0.484
Q12	Achieving Goals	0.401	0.125	-0.186	0.192	0.450
Q17	Achieving Goals	0.386	-0.037	0.160	0.333	0.370
Q11	Managing Change	0.471	0.014	0.311	0.447	0.225
Q15	Cultural Strength	0.294	0.466	0.323	-0.277	-0.158

APPENDIX D

Demographic Variables

Table 1

ACSC Class 94-95 Comparison of Demographic Variables with TLP Leadership Dimension Scores One Year After the Intervention

		Gender					Branch of Service			
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	187	23.772	0.357	21	0.304	187	49.223	0.296	63	0.898
Transformational Behavior	187	34.308	0.428	36	0.549	187	97.324	0.417	108	0.760
Transformational Characteristics	186	38.796	0.457	35	0.302	186	128.805	0.480	105	0.057
		Commission Source					Aero Rating			
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	185	63.894	0.339	63	0.445	187	87.254	0.342	84	0.382
Transformational Behavior	185	111.669	0.449	108	0.385	187	116.919	0.395	144	0.952
Transformational Characteristics	184	88.910	0.401	105	0.870	186	137.794	0.430	140	0.537
		Ethnicity					Educational Level			
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	184	56.352	0.320	63	0.710	187	39.446	0.325	42	0.584
Transformational Behavior	184	85.783	0.394	108	0.943	187	45.110	0.347	72	0.995
Transformational Characteristics	183	89.124	0.403	105	0.866	186	50.410	0.368	70	0.963
		Marital Status					Military Spouse			
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	187	45.491	0.349	42	0.329	187	16.015	0.293	21	0.769
Transformational Behavior	187	78.159	0.457	72	0.290	187	19.286	0.321	36	0.990
Transformational Characteristics	186	77.953	0.458	70	0.241	186	30.103	0.402	35	0.703

Table 2

ACSC Class 94-95 Comparison of Demographic Variables with TLP Leadership Dimension Scores Two Years After the Intervention

		Gender				Branch of Service				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	155	20.157	0.361	22	0.573	155	67.844	0.382	66	0.414
Transformational Behavior	155	22.865	0.384	27	0.692	155	65.888	0.376	81	0.888
Transformational Characteristics	155	36.428	0.485	31	0.231	155	88.260	0.436	93	0.620
		Commission Source				Aero Rating				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	153	56.731	0.352	66	0.785	155	88.434	0.378	88	0.467
Transformational Behavior	153	66.705	0.381	81	0.874	155	132.205	0.462	108	0.057
Transformational Characteristics	153	80.029	0.418	93	0.829	155	101.087	0.404	124	0.935
		Ethnicity				Educational Level				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	152	45.759	0.317	66	0.973	155	34.907	0.336	44	0.835
Transformational Behavior	152	61.832	0.368	81	0.944	155	51.739	0.409	54	0.562
Transformational Characteristics	152	58.233	0.357	93	0.998	155	76.855	0.498	62	0.097
		Marital Status				Military Spouse				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	155	65.539	0.460	44	**0.019** **	155	20.783	0.366	22	0.534
Transformational Behavior	155	64.616	0.457	54	0.153	155	19.315	0.353	27	0.858
Transformational Characteristics	155	55.878	0.425	62	0.694	155	37.824	0.494	31	0.186

** Significance is suspect; likelihood ratio chi square is p=0.679.

Table 3

ACSC Class 95-96 Comparison of Demographic Variables with Pre-intervention TLP Leadership Scores

		Gender				Branch of Service				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	433	22.735	0.229	26	0.648	432	85.771	0.257	78	0.256
Transformational Behavior	433	31.458	0.270	40	0.831	432	116.613	0.300	120	0.570
Transformational Characteristics	433	31.281	0.269	39	0.806	432	103.824	0.283	117	0.803
		Commission Source *				Aero Rating				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior						433	47.331	0.234	52	0.758
Transformational Behavior						433	74.474	0.293	80	0.653
Transformational Characteristics						433	68.490	0.281	78	0.771
		Ethnicity				Educational Level				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	433	65.228	0.274	52	0.103	432	53.223	0.248	52	0.427
Transformational Behavior	433	52.356	0.246	80	0.993	432	73.791	0.292	80	0.674
Transformational Characteristics	433	64.128	0.272	78	0.871	432	59.246	0.262	78	0.944
		Marital Status				Military Spouse				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	431	19.588	0.213	26	0.811	432	32.174	0.273	26	0.187
Transformational Behavior	431	34.066	0.281	40	0.734	432	42.279	0.313	40	0.373
Transformational Characteristics	431	35.029	0.285	39	0.652	432	21.961	0.225	39	0.987

* Data Not Available

Table 4

ACSC Class 95-96 Comparison of Demographic Variables with Post-intervention TLP Leadership Scores

		Gender				Branch of Service				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	282	27.049	0.310	25	0.353	282	57.396	0.260	75	0.935
Transformational Behavior	282	32.324	0.338	41	0.834	282	110.615	0.362	123	0.781
Transformational Characteristics	282	26.603	0.307	37	0.897	282	104.828	0.352	111	0.647
		Commission Source *				Aero Rating				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior						282	55.723	0.314	50	0.268
Transformational Behavior						282	105.695	0.433	82	**0.040** **
Transformational Characteristics						282	70.356	0.353	74	0.599
		Ethnicity				Educational Level				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	282	32.937	0.249	50	0.948	282	36.459	0.254	50	0.924
Transformational Behavior	282	87.121	0.393	82	0.329	282	69.726	0.352	52	0.831
Transformational Characteristics	282	81.575	0.380	74	0.256	282	56.090	0.315	74	0.940
		Marital Status				Military Spouse				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	282	14.805	0.229	25	0.946	282	41.663	0.384	25	**0.020** ***
Transformational Behavior	282	39.600	0.375	41	0.533	282	40.190	0.378	41	0.506
Transformational Characteristics	282	39.358	0.374	37	0.361	282	32.349	0.339	37	0.687

* Data Not Available

** Significance is not suspect; likelihood ratio chi square is p=0.002.

*** Significance is suspect; likelihood ratio chi square is p=0.068.

Table 5

ACSC Class 95-96 Comparison of Demographic Variables with One Year Post-intervention TLP Leadership Scores

		Gender					Branch of Service			
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	154	23.950	0.394	23	0.407	154	48.412	0.324	69	0.972
Transformational Behavior	154	30.657	0.446	33	0.632	154	55.871	0.348	102	1.000
Transformational Characteristics	154	25.231	0.405	35	0.888	154	84.351	0.427	105	0.931
		Commission Source *					Aero Rating			
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior						154	42.522	0.372	46	0.619
Transformational Behavior						154	72.581	0.485	68	0.330
Transformational Characteristics						154	63.155	0.453	70	0.706
		Ethnicity					Educational Level			
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	154	30.366	0.314	46	0.963	154	113.964	0.608	46	**0.000 ****
Transformational Behavior	154	57.040	0.430	68	0.826	154	61.346	0.446	68	0.703
Transformational Characteristics	154	81.895	0.516	70	0.156	154	52.963	0.415	70	0.936
		Marital Status					Military Spouse			
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	154	21.183	0.371	23	0.570	154	18.474	0.346	23	0.731
Transformational Behavior	154	34.033	0.470	34	0.466	154	29.020	0.434	34	0.710
Transformational Characteristics	154	38.472	0.500	35	0.315	154	13.953	0.301	35	0.999

* Data Not Available

** Significance is suspect, likelihood ratio chi square is p=0.697

Table 6

ACSC Class 96-97 Comparison of Demographic Variables with Pre-intervention TLP Leadership Scores

		Gender				Branch of Service				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	277	26.411	0.309	24	0.333	277	75.404	0.301	72	0.369
Transformational Behavior	277	39.996	0.380	42	0.559	277	90.801	0.331	126	0.992
Transformational Characteristics	277	51.004	0.429	37	0.063	277	101.637	0.350	111	0.726
		Commission Source				Aero Rating				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	277	54.419	0.313	48	0.243	277	45.487	0.287	48	0.576
Transformational Behavior	277	90.901	0.405	84	0.284	277	86.355	0.395	84	0.409
Transformational Characteristics	277	75.696	0.370	74	0.423	277	55.245	0.316	74	0.949
		Ethnicity				Educational Level				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	277	45.129	0.285	48	0.591	277	48.116	0.295	48	0.468
Transformational Behavior	277	100.423	0.426	84	0.107	277	110.077	0.446	86	**0.030** *
Transformational Characteristics	277	71.643	0.360	74	0.556	277	55.600	0.317	74	0.946
		Marital Status				Military Spouse				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	277	29.387	0.326	24	0.206	276	34.296	0.352	23	0.061
Transformational Behavior	277	36.799	0.364	42	0.698	276	43.195	0.396	42	0.420
Transformational Characteristics	277	48.856	0.420	37	0.092	276	33.707	0.349	37	0.624

* Significance is suspect, likelihood ratio chi square is p=0.365

Table 7

ACSC Class 96-97 Comparison of Demographic Variables with Post-intervention TLP Leadership Scores

		Gender				Branch of Service				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	420	29.311	0.264	22	0.136	420	67.008	0.231	66	0.442
Transformational Behavior	420	42.437	0.318	41	0.409	420	105.257	0.289	123	0.874
Transformational Characteristics	420	44.832	0.327	38	0.207	420	125.861	0.316	114	0.211
		Commission Source				Aero Rating				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	420	27.562	0.181	44	0.975	420	51.886	0.249	44	0.193
Transformational Behavior	420	82.531	0.313	82	0.463	420	76.321	0.307	82	0.563
Transformational Characteristics	420	67.696	0.284	76	0.741	420	71.422	0.292	76	0.627
		Ethnicity				Educational Level				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	420	28.594	0.184	44	0.965	420	53.944	0.253	44	0.145
Transformational Behavior	420	61.196	0.270	82	0.958	420	85.556	0.319	82	0.372
Transformational Characteristics	420	79.627	0.308	76	0.366	420	71.996	0.293	76	0.609
		Marital Status				Military Spouse				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Transactional Behavior	420	25.533	0.247	22	0.272	420	8.806	0.145	21	0.991
Transformational Behavior	420	30.349	0.269	41	0.889	419	38.590	0.303	41	0.578
Transformational Characteristics	420	34.026	0.285	38	0.654	419	38.230	0.302	38	0.459

Table 8

ACSC Class 95-96 Comparison of Demographic Variables with OCAQ Dimensions Scores After the Intervention

		Gender				Branch of Service				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Coordinated Teamwork	265	5.517	0.144	17	0.996	265	36.892	0.215	51	0.931
Managing Change	265	17.770	0.259	19	0.538	265	82.218	0.322	57	0.016*[1]
Customer Orientation	264	16.109	0.247	21	0.763	264	57.249	0.269	63	0.680
Cultural Strength	264	20.098	0.276	19	0.389	265	86.137	0.330	57	0.008*[2]
Achieving Goals	265	25.886	0.313	21	0.211	265	98.593	0.352	63	0.003*[3]
		Commission Source ⊕				Aero Rating				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Coordinated Teamwork	265					265	34.157	0.254	34	0.460
Managing Change	265					265	27.836	0.229	38	0.887
Customer Orientation	265					264	28.671	0.233	42	0.942
Cultural Strength	265					265	33.532	0.252	38	0.676
Achieving Goals	265					265	35.307	0.258	42	0.758
		Ethnicity				Educational Level				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Coordinated Teamwork	265	35.869	0.260	34	0.381	265	55.240	0.323	34	0.012*[5]
Managing Change	265	26.471	0.223	38	0.920	265	24.020	0.213	38	0.962
Customer Orientation	265	51.543	0.312	42	0.148	264	76.949	0.382	42	0.001*[6]
Cultural Strength	265	54.042	0.320	38	0.044*[4]	264	30.331	0.240	38	0.808
Achieving Goals	265	37.757	0.267	42	0.658	265	36.659	0.263	42	0.704
		Marital Status				Military Spouse				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Coordinated Teamwork	264	16.822	0.252	17	0.466	265	15.560	0.242	17	0.555
Managing Change	264	41.338	0.396	19	0.002◆[1]	265	19.064	0.268	19	0.453
Customer Orientation	263	35.246	0.366	21	0.027◆[2]	264	15.006	0.238	21	0.823
Cultural Strength	263	33.099	0.355	19	0.023*[7]	264	20.173	0.276	19	0.384
Achieving Goals	264	36.518	0.372	21	0.019*[8]	265	16.403	0.249	21	0.747

⊕ Data Not Avalable

*[1] Significance is suspect: likelihood ratio chi square is p=0.654: More than one-fifth of fitted cells are sparse (frequency < 5)
*[2] Significance is suspect: likelihood ratio chi square is p=0.191: More than one-fifth of fitted cells are sparse (frequency < 5)
*[3] Significance is suspect: likelihood ratio chi square is p=0.462: More than one-fifth of fitted cells are sparse (frequency < 5)
*[4] Significance is suspect: likelihood ratio chi square is p=0.376: More than one-fifth of fitted cells are sparse (frequency < 5)
*[5] Significance is suspect: likelihood ratio chi square is p=0.746: More than one-fifth of fitted cells are sparse (frequency < 5)
*[6] Significance is suspect: likelihood ratio chi square is p=0.704: More than one-fifth of fitted cells are sparse (frequency < 5)
*[7] Significance is suspect: likelihood ratio chi square is p=0.128: More than one-fifth of fitted cells are sparse (frequency < 5)
*[8] Significance is suspect: likelihood ratio chi square is p=0.101: More than one-fifth of fitted cells are sparse (frequency < 5)

◆[1] Significance is not suspect: likelihood ratio chi square is p=0.005: More than one-fifth of fitted cells are sparse (frequency < 5)
◆[2] Significance is not suspect: likelihood ratio chi square is p=0.044: More than one-fifth of fitted cells are sparse (frequency < 5)

Table 9

ACSC Class 96-97 Comparison of Demographic Variables with OCAQ Dimensions Scores After the Intervention

		Gender				Branch of Service				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Coordinated Teamwork	265	24.066	0.301	17	0.118	265	95.150	0.268	85	0.212
Managing Change	265	13.764	0.228	19	0.797	265	95.860	0.269	95	0.456
Customer Orientation	265	17.999	0.261	21	0.649	265	132.028	0.316	105	0.038*[1]
Cultural Strength	265	18.388	0.263	19	0.497	265	92.243	0.264	95	0.561
Achieving Goals	265	16.850	0.252	21	0.720	265	121.425	0.303	105	0.130
		Commission Source				Aero Rating				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Coordinated Teamwork	264	108.941	0.287	85	0.041*[4]	265	25.783	0.221	34	0.843
Managing Change	264	128.852	0.312	95	0.012*[2]	265	38.560	0.270	38	0.444
Customer Orientation	264	179.524	0.369	105	0.001*[3]	265	34.735	0.256	42	0.779
Cultural Strength	264	208.902	0.398	95	0.001*[6]	265	32.079	0.246	38	0.739
Achieving Goals	264	211.910	0.401	105	0.001*[5]	265	37.457	0.266	42	0.670
		Ethnicity				Educational Level				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Coordinated Teamwork	265	46.911	0.298	34	0.069	265	45.067	0.238	51	0.707
Managing Change	265	32.031	0.246	38	0.741	265	51.278	0.254	57	0.689
Customer Orientation	265	41.121	0.279	42	0.509	265	51.858	0.255	63	0.841
Cultural Strength	265	53.967	0.310	38	0.045*[7]	265	54.115	0.261	57	0.584
Achieving Goals	265	21.771	0.203	42	0.996	265	162.538	0.452	63	0.001*[8]
		Marital Status				Military Spouse				
	N	*Pearson chi square*	*Cramer's V*	*df*	*p*	*N*	*Pearson chi square*	*Cramer's V*	*df*	*p*
Coordinated Teamwork	264	12.996	0.222	17	0.736	265	10.735	0.201	17	0.870
Managing Change	264	22.019	0.289	19	0.283	265	12.853	0.220	19	0.846
Customer Orientation	264	23.153	0.296	21	0.336	265	11.237	0.206	21	0.958
Cultural Strength	264	16.599	0.251	19	0.617	265	11.459	0.208	19	0.907
Achieving Goals	264	17.458	0.257	21	0.683	265	11.108	0.205	21	0.961

*[1] Significance is suspect: likelihood ratio chi square is p=0.691: More than one-fifth of fitted cells are sparse (frequency < 5)
*[2] Significance is suspect: likelihood ratio chi square is p=0.383: More than one-fifth of fitted cells are sparse (frequency < 5)
*[3] Significance is suspect: likelihood ratio chi square is p=0.987: More than one-fifth of fitted cells are sparse (frequency < 5)
*[4] Significance is suspect: likelihood ratio chi square is p=0.817: More than one-fifth of fitted cells are sparse (frequency < 5)
*[5] Significance is suspect: likelihood ratio chi square is p=0.898: More than one-fifth of fitted cells are sparse (frequency < 5)
*[6] Significance is suspect: likelihood ratio chi square is p=0.802: More than one-fifth of fitted cells are sparse (frequency < 5)
*[7] Significance is suspect: likelihood ratio chi square is p=0.685: More than one-fifth of fitted cells are sparse (frequency < 5)
*[8] Significance is suspect: likelihood ratio chi square is p=0.958: More than one-fifth of fitted cells are sparse (frequency < 5)

APPENDIX E

Cronbach's α Sub-scales for Scale 8

Table 10

Cronbach's α Sub-scales for Scale 8: ACSC Class 94-95

	+1 Intervention	+2 Intervention
Scale 8: Follower-Centered Leadership (power need and direction)	.213	.143
• Personal Power Sub-scale (8+18)	.367	.591
• Pro-Social Power Sub-scale (28+38+48+)	.605	.481

Table 11

Cronbach's α Sub-scales for Scale 8: ACSC Class 95-96

	Prior to the Intervention	Post Intervention	+1 Year Intervention
Scale 8: Follower-Centered Leadership (power need and direction)	.334	.242	.262
• Personal Power Sub-scale (8+18)	.621	.615	.564
• Pro-Social Power Sub-scale (28+38+48+)	.627	.650	.701

Table 12

Cronbach's α Sub-scales for Scale 8: ACSC Class 96-97

	Prior to the Intervention	Post Intervention
Scale 8: Follower-Centered Leadership (power need and direction)	.208	.060
• Personal Power Sub-scale (8+18)	.565	.610
• Pro-Social Power Sub-scale (28+38+48+)	.609	.689

ATTACHMENT 1

The Leadership Profile

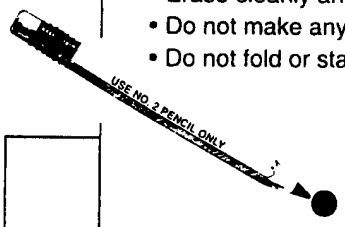
Trans-Optic® by NCS EM-160883-2:65432 ED10 Printed in U.S.A.

The Leadership Profile

Marshall Sashkin, Ph.D.
and
William E. Rosenbach, Ph.D.

MARKING INSTRUCTIONS

- Use a NO. 2 PENCIL only.
- Darken the circle completely.
- Erase cleanly any marks you wish to change.
- Do not make any stray marks on this form.
- Do not fold or staple.



RIGHT MARK

Each of the following statements describes a certain leadership behavior, characteristic, or effect that a leader might have on a group or organization. Read each statement carefully and decide what extent it is an accura description of the person you are describing. For each statement, mark the response that best describes to what extent that statement accurately characterizes the actual leadership behavior of the person being described.

NAME OF PERSON BEING DESCRIBED

Last Name | First Name | MI

RELATIONSHIP TO PERSON BEING DESCRIBED

- I am the person being described ○
- I am an associate of the person being described ○

For Office Use Only

PARTICIPANT NUMBER

RATER NUMBER

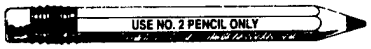
PLEASE CONTINUE ON BACK

ATTACHMENT 2

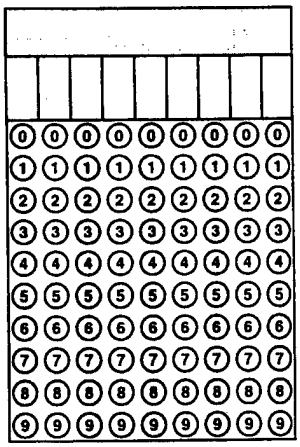
The Organizational Culture Assessment Questionnaire

ORGANIZATIONAL CULTURE ASSESSMENT QUESTIONNAIRE

Pillars of Excellence



INCORRECT MARKS ⊘ ⊗ ◒ ⊙ CORRECT MARK ●



INSTRUCTIONS

This questionnaire measures the ways that people in your organization generally think and act. The questions ask you to describe, as best you can, how people typically behave and the sorts of things they generally believe about the organization and how it operates.

In giving your answers, the term "organization" is used to mean the largest unit or part of the whole organization that you relate to directly in your normal work activities. This might be the entire organization or it might be a division or some other relatively "whole" part of the larger organization. This would *not*, however, normally be a small unit such as a work group; try your best to give answers that you think apply to the *largest* part of the organization that you deal with directly on a day-to-day basis.

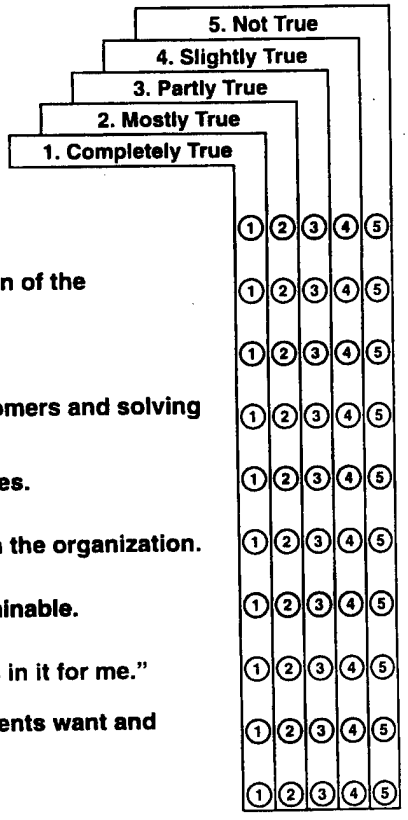
Of course, it is impossible for anyone to know exactly what others think and believe about a wide range of issues; the aim here is to identify a rough, general consensus of ideas and beliefs that people in your organization shar and that affect the way they behave. Please be as accurate as possible in d bing the behaviors and attitudes of yourself and other members of the org There are no right or wrong answers. Your answers should indic ually happens as you and others view it, *not* what you believe sh how you think people *should* see things.

Use the following response key:

1. Completely True: This statement definite think and act in my
2. Mostly True: This statement act in my or
3. Partly True: This sta peop
4. Slightly True: This s in my o
5. Not True: This state people in m

people

to the way and act.



In this organization . . .

1. people are flexible and adaptable when changes are necessary.
2. individuals and teams have clearly defined goals that relate to the goals or mission of the organization.
3. teams often lack the authority needed to get the job done effectively.
4. we give the highest priority and support to meeting the needs of clients and customers and solving their problems.
5. people value and make use of one another's unique strengths and different abilities.
6. people feel that most change is the result of pressures imposed from higher up in the organization.
7. people and teams are often expected to reach goals which they believe are unattainable.
8. people believe in teamwork, the "what's in it for us" approach rather than "what's in it for me."
9. our policies and procedures help us to provide the service our customers and clients want and need.
10. everyone knows and understands our business objectives and priorities.

PLEASE CONTINUE ON THE OTHER SIDE

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ATTACHMENT 3

TLP Survey Distribution Letter and Rationale for the First Collection of Data

Seminar Leader:

I know that you have just arrived and are busy settling in but we need you to fill out the first half of the transformational leadership questionnaire. This survey is a longitudinal study that will gauge changes in your leadership style over time. In a few days you will be asked to fill out another questionnaire on culture to establish a environmental baseline. You will be asked to fill out a similar questionnaire at the end of your term at ACSC and one year after you graduate. The original data base has been building since 1982 so we in the military will finally have a chance to compare our leadership styles to the population as a whole. It may be hard to believe, but the Air Force has no long term leadership data that can be used to improve, let alone find, leaders. This study is the first step. Please help in making this one a success.

Please pass out the enclosed Transformational Leadership questionnaire to your seminar to be filled out and brief them on the importance, rationale and instructions on how to fill out the questionnaire. After the questionnaire has been filled out, please put all copies of the form back in the envelope, seal and handcarry to the Dean of Education's Office (DE), Room # 149, and place them in the box labeled Leadership Surveys. My POC at ACSC is Capt. Ted Kracht, 953-7724, who is the DE exec. Please do this within two days of receiving this package.

I want to again state that though I have asked for your names, no connection between each participant and their responses will ever be made. The names are used only to match up the different survey inputs and to allow me to find a way to send you the third survey by mail in one year. After the data is compiled the name column in the database will be erased so that no one, not even me, will be able to trace any response.

If I can be of any help or if you would be interested in discussing the project in any way, you can reach me at 703-522-0913 or my E-Mail:blaffert@gwis2.circ.gwu.edu
Please tell your seminar that I extend the invitation to them as well.

Again, I know you all are busy but please take the time out to fill out the survey. If we don't get some compiled data on types and dimensions of leadership, future career decisions will continue to be made by leaders applying what was relevant to their time and not ours.

Thank you for your time.

Instructions on how to fill out the form

Seminar Leader:

- Please pass out a blank questionnaire to every member of your seminar and brief them on the survey and its importance.
- Please fill out the PARTICIPANT NUMBER Block of the questionnaire with the last three numbers of your social security number. If the seminar member is an international student fill in their seminar number.
- After the questionnaire has been filled out, please collect all copies of the form, seal them in the envelope and handcarry it to the Dean of Education Office (DE), Room #149 and place it in the box labeled Leadership Surveys.
- My POC at ACSC is Capt. Ted Kracht, 953-7724 who is the DE exec. Please do this within two days of receiving this package

Seminar Student

- Please use a pencil to fill out the questionnaire. Please do not staple or fold the form. On the front of the form:
  - Fill in your name and darken the appropriate circles.
    Note: The reasons we ask your name to be able to compare your responses given today with another questionnaire we plan to give to one year after you graduate. Your confidentiality is guaranteed and no association between you and your data will be made other than statistically by case study number.
  - In the block labeled ***Relationship To Person Being Described*** please fill the circle stating *I am the person being described.*
  - In the block labeled ***Participant Number Block*** in the For Official Use Only section, fill in your the last three numbers of your social security number. If the seminar member is an international student fill in their seminar number. Please fill the circles that correspond to the number written in on top.
  - Please turn the questionnaire over and answer the questions from your point of view.
    For example the first question would be
    1. I make sure people have the resources they need to do a good job.
- Please return the completed questionnaire to your seminar leader.

Thank you.

Quick and Easy Instructions On How To Fill Out The Leadership Profile

Marshall Sashkin, Ph.D.
and
William E. Rosenbach, Ph.D.

Quick and Easy Instructions On How To Fill Out Our Survey

1. Please use a pencil.

2. Please Fill In Your Name. Please fill the circles that correspond to your name.
   - We ask your name so we can find you and send you a follow-up questionnaire in one year. Your name is never released and the database does not contain your name

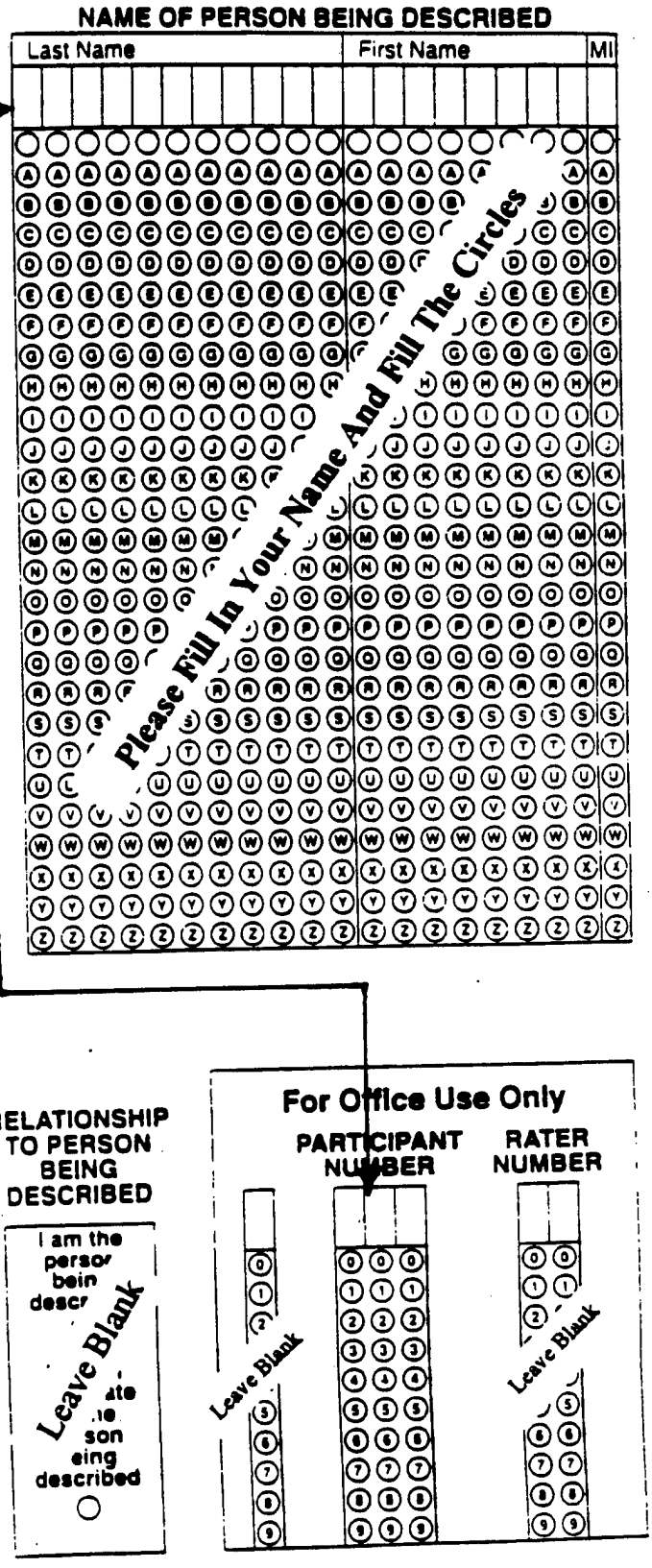
3. In the block labeled ***Participant Number*** Block in the For Office Use Only section, fill in your the **last three numbers** of your social security number. Please fill the circles that correspond to the number written in on top.
   - For example if your social security number would be 291-52-1640 enter 640. If you are an international office put your seminar number in the space
   - Note: This number is only used for sorting to align the different questionnaires. We use your SSAN because it doesn't change and you don't have to remember a participant number. No reference to individuals will be made in any way. All limitations to release of this number are adhered to. The Privacy Act of 1974 applies.

4. Please turn the questionnaire over and answer the questions from <u>your point of view</u>.
   - For example, the first question would be
     1. I make sure people have the resources they need to do a good job.
   - Please answer all items to the best of your ability, even those that may not seem to apply to you personally.

5. When you are done, please return the completed questionnaire to your seminar leader. They will consolidate them and drop them off at the Dean's office.

Thank you very much for your time and interest. We greatly appreciate your help. If you would like a copy of our findings or have any questions, comments or recommendation please contact me at:

Lt. Col. Brad Lafferty
703-522-0913
blaffert@gwis2.circ.gwu.edu



Rationale

Why we are asking you to fill out this questionnaire on leadership and on military culture?

With the success of Desert Storm and the end of the Cold War, the Department of Defense is facing huge drawdowns and reorganizational change. The biggest challenge we face right now is internal, and the biggest issue is what styles of leadership are most appropriate to carry us through these times successfully. But what is the proper type or style of leadership needed and what types of leadership are out there in the pool of future leaders? Also how are these changes related to the changing military environment or culture? Because the Air Force has no compiled data, a database is imperative. This questionnaire is the first in a two-year study to examine the types of leadership we currently have in our organizations and establishes a baseline. The study attempts to determine the composition of leadership styles by building a transformational leadership profile (i.e., leaders of change by degree) based in the Air Force culture. As these are is a baseline questionnaires, they asks that each of you assess your leadership style and the culture you operate in via the two separate questionnaires distributed over the course of a week so that each does not conflict with the other.

Why this is important, why it is not a waste of your time.

In past conflicts, the US has found that different leadership styles were needed for the conflict at hand. Two examples are the leadership changes in the American Civil War in trying to find the right leadership for the Army of the Potomac, and in World War II where we saw leadership shift to Generals Marshall and Eisenhower, who a few years before were field grade officers like yourselves. In both cases, a different leadership style was needed for the crises at hand (the changing culture), and the people who could resolve these crises had to be found. Further, in both examples little information was available on the composition of the force, the people and leadership skills available; consequently, leadership selection was trial and error or by word of mouth. In today's time-constrained environment, we don't have this luxury. Historically crisis leadership has emerged from the lower field grade ranks, people exactly like you, so it makes sense to try to determine what types and trends compose the leadership style of this group.

Who will review the compiled data?

The final report will be on file at ACSC, George Washington University, and Air University. The report will be made available to the Air Force Educational Foundation.

Does this questionnaire have validity or is it a series of questions put together to meet a last minute tasking by people not versed in leadership?

Both the Transformational Leadership Profile and the Organizational Culture Assessment Questionnaire were designed in 1982 and have a proven validity track record. Both have gone through three major revisions in that time resulting in the final product you now see. The compiled database spans organizations from all management areas to include the US Navy and US Army. The current database does not contain any Air Force or Air Force PME data. This is why we used this instrument.

Who is conducting this research?

This project is sponsored by the George Washington University Executive Leadership Program, Washington, D.C. in conjunction with Air Command and Staff College, the Air Force Institute of Technology and the Air Force Educational Foundation. It is registered with the Air Command and Staff Department of Research and has been approved by the Ethics Committee, George Washington University, Washington D.C., to insure no reference between the data collected and the individuals participating in the survey is made. It is being conducted by Lt. Col. Brad D. Lafferty, 703-522-0913 or E-Mail:blaffert@gwis2.circ.gwu.edu.

ATTACHMENT 4

TLP Survey Distribution Letter and Rationale for the Second Collection of Data

"NO! Not another questionnaire! All I want to do is leave this place and get back to the real Air Force and my career! Do these people have nothing better to do other than ask us a bunch of dumb questions!!!"

Seminar Leader:

I know that you all have been surveyed to death and that many of you will echo the above statement, but I have to ask you to fill out the first half of the transformational leadership questionnaire. As you know from the last time you filled out this questionnaire, the survey is a longitudinal study that will gauge changes in your leadership style over time. The original data base has been building since 1982 so we in the military will finally have a chance to compare our leadership styles to the population as a whole. It may be hard to believe, but the Air Force has no long term leadership data that can be used to improve, let alone find, leaders. This study is the first step. A couple of days after this questionnaire, a second questionnaire will be distributed to set a cultural baseline to establish exactly what type of culture the Air Force is, specifically Air Command and Staff College. Participation to the first distribution of the survey when you all first arrived was outstanding. Please help in making this one a success also.

Please pass out the enclosed Transformational Leadership questionnaire to your seminar to be filled out and brief them on the importance, rationale and instructions on how to fill out the questionnaire. After the questionnaire has been filled out, please put all copies of the form back in the envelope, seal and handcarry to the Dean of Education's Office (DE), Room # 149, and place them in the box labeled Leadership Surveys. My POC at ACSC is Capt Ted Kracht, 953-7724, who is the DE exec. Please do this within two days of receiving this package.

I want to again state that though I have asked for your names, no connection between each participant and their responses will ever be made. The names are used only to match up the different survey inputs and to allow me to find a way to send you the third survey by mail in one year. After the data is compiled the name column in the database will be erased so that no one, not even me, will be able to trace any response.

If I can be of any help or if you would be interested in discussing the project in any way, you can reach me at 703-522-0913 or my E-Mail:blaffert@gwis2.circ.gwu.edu
Please tell your seminar that I extend the invitation to them as well.

Again, I know you all are ready to leave but please take the time out to fill out the survey. If we don't get some compiled data on types and dimensions of leadership, future career decisions will continue to be made by leaders applying what was relevant to their time and not ours.

Thank you for your time.

Instructions on how to fill out the form

Seminar Leader:

- Please pass out a blank questionnaire to every member of your seminar and brief them on the survey and its importance.
- Enclosed in the package is an alphabetical listing by last name of the participant numbers. Your seminar mates will need to know what their participant number is to fill out the PARTICIPANT NUMBER Block of the questionnaire. Please help in providing this. If their name is not on the list please ask them to just fill in their name on the questionnaire and leave the participant number block blank.
- After the questionnaire has been filled out, please collect all copies of the form, seal them in the envelope and handcarry it to the Dean of Education Office (DE), Room #149 and place it in the box labeled Leadership Surveys.
- My POC at ACSC is Capt. Ted Kracht, 953-7724 who is the DE exec. Please do this within two days of receiving this package

Seminar Student

- Please use a pencil to fill out the questionnaire. Please do not staple or fold the form. On the front of the form:
  - Fill in your name and darken the appropriate circles.
    Note: The reasons we ask your name to be able to compare your responses given today with another questionnaire we plan to give to one year after you graduate. Your confidentiality is guaranteed and no association between you and your data will be made other than statistically by case study number.
  - In the block labeled ***Relationship To Person Being Described*** please fill the circle stating *I am the person being described.*
  - In the block labeled ***Participant Number Block*** in the For Official Use Only section, fill in your *Participant Number.* Your seminar leader has a list of the numbers you used for the first questionnaire. Please fill the circles that correspond to the number written in on top.
  - Please turn the questionnaire over and answer the questions from your point of view.
    For example the first question would be
    1. I make sure people have the resources they need to do a good job.
- Please return the completed questionnaire to your seminar leader.

Thank you.

Quick and Easy Instructions On How To Fill Out The Leadership Profile

Marshall Sashkin, Ph.D.
and
William E. Rosenbach, Ph.D.

Quick and Easy Instructions On How To Fill Out Our Survey

1. Please use a pencil.

2. Please Fill In Your Name. Please fill the circles that correspond to your name.
   - We ask your name so we can find you and send you a follow-up questionnaire in one year. Your name is never released and the database does not contain your name

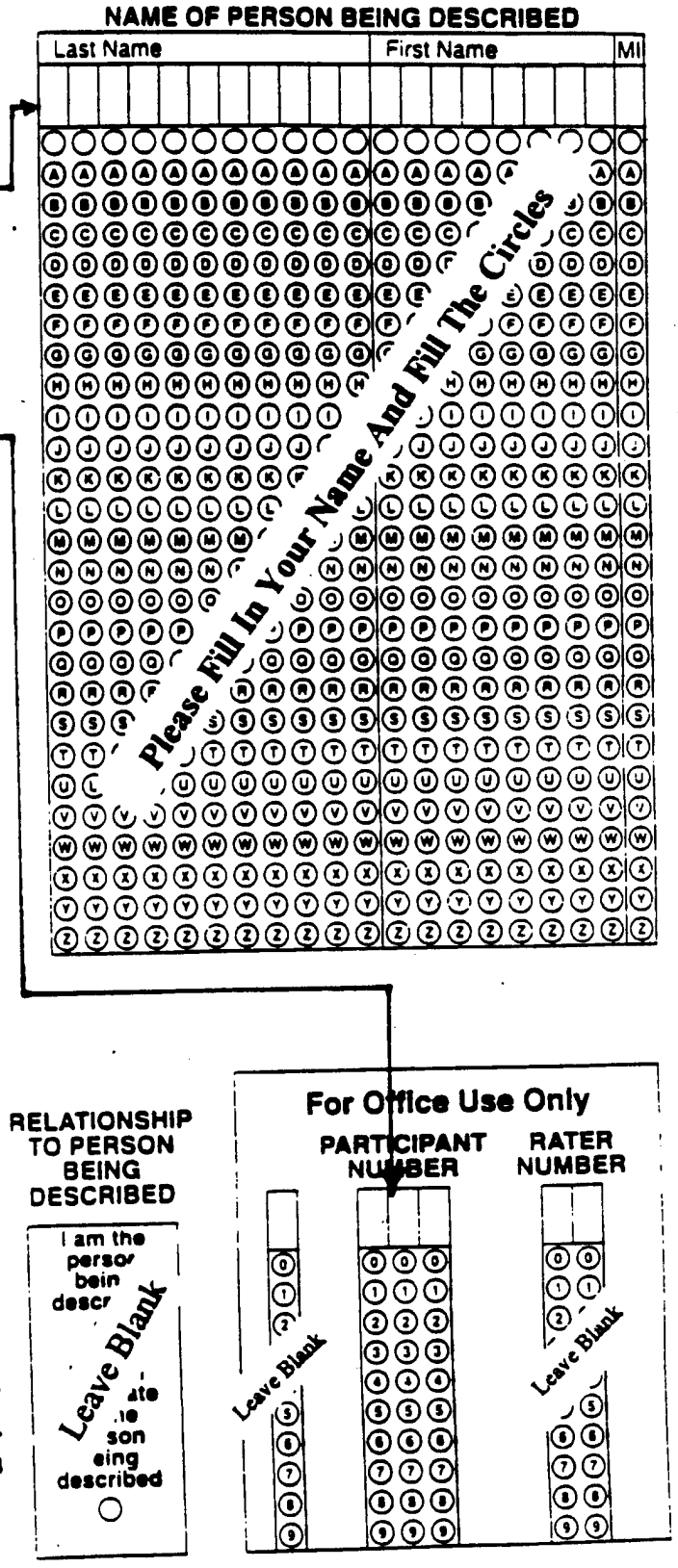
3. In the block labeled ***Participant Number*** Block in the For Office Use Only section, fill in your the **last three numbers** of your social security number. Please fill the circles that correspond to the number written in on top.
   - For example if your social security number would be 291-52-1640 enter 640. If you are an international office put your seminar number in the space
   - Note: This number is only used for sorting to align the different questionnaires. We use your SSAN because it doesn't change and you don't have to remember a participant number. No reference to individuals will be made in any way. All limitations to release of this number are adhered to. The Privacy Act of 1974 applies.

4. Please turn the questionnaire over and answer the questions from <u>your point of view</u>.
   - For example, the first question would be
     1. I make sure people have the resources they need to do a good job.
   - Please answer all items to the best of your ability, even those that may not seem to apply to you personally.

5. When you are done, please return the completed questionnaire to your seminar leader. They will consolidate them and drop them off at the Dean's office.

Thank you very much for your time and interest. We greatly appreciate your help. If you would like a copy of our findings or have any questions, comments or recommendation please contact me at:

Lt. Col. Brad Lafferty
703-522-0913
blaffert@gwis2.circ.gwu.edu



Rationale

Why we are asking you to fill out another questionnaire on leadership?

With the success of Desert Storm and the end of the Cold War, the Department of Defense is facing huge drawdowns and reorganizational change. The biggest challenge we face right now is internal, and the biggest issue is what styles of, leadership are most appropriate to carry us through these times successfully. But what is the proper type or style of leadership needed, and what types of leadership are out there in the pool of future leaders? Because the Air Force has no compiled data, a database is imperative. This questionnaire is the first in a two-year study to examine the types of leadership we currently have in our organizations and establishes a baseline. The study attempts to determine the composition of leadership styles by building a transformational leadership profile (i.e., leaders of change by degree) based in the Air Force culture. As this is a baseline questionnaire, it asks that each of you assess your leadership style.

Why this is important, why it is not a waste of your time.

In past conflicts, the US has found that different leadership styles were needed for the conflict at hand. Two examples are the leadership changes in the American Civil War in trying to find the right leadership for the Army of the Potomac, and in World War II where we saw leadership shift to Generals Marshall and Eisenhower, who a few years before were field grade officers like yourselves. In both cases, a different leadership style was needed for the crises at hand, and the people who could resolve these crises had to be found. Further, in both examples little information was available on the composition of the force, the people and leadership skills available; consequently, leadership selection was trial and error or by word of mouth. In today's time-constrained environment, we don't have this luxury. Historically crisis leadership has emerged from the lower field grade ranks, people exactly like you, so it makes sense to try to determine what types and trends compose the leadership style of this group.

Who will review the compiled data?

The final report will be on file at ACSC, George Washington University, and Air University. The report will be made available to the Air Force Educational Foundation.

Does this questionnaire have validity or is it a series of questions put together to meet a last minute tasking by people not versed in leadership?

Both the Transformational Leadership Profile and the Organizational Culture Assessment Questionnaire were designed in 1982 and have a proven validity track record. Both have gone through three major revisions in that time, resulting in the final product you now see. The compiled database spans organizations from all management areas to include the US Navy. The current database does not contain any Air Force or Air Force PME data. This is why we used this instrument.

Who is conducting this research?

This project is sponsored by the George Washington University Executive Leadership Program, Washington, D.C. in conjunction with Air Command and Staff College, the Air Force Institute of Technology and the Air Force Educational Foundation. It is registered with the Air Command and Staff Department of Research and has been approved by the Ethics Committee, George Washington University, Washington D.C., to insure no reference between the data collected and the individuals participating in the survey is made. It is being conducted by Lt Col Brad D. Lafferty, 703-522-0913 or E-Mail:blaffert@gwis2.circ.gwu.edu.

ATTACHMENT 5

OCAQ Survey Distribution Letter and Rationale for the Second Collection of Data

"NO WAY! Didn't I just fill out one of these questionnaires? What kind of time do these people think we have! Do these people have nothing better to do other than ask us a bunch of dumb questions!!!"

Seminar Leader:

No, you are not mistaken. This is the second half of the leadership questionnaire that I promised. I know how limited your time is and that you all have been surveyed to death, so it is as short and direct as possible. The reason that both questionnaires are not given simultaneously by the way is that the responses carry over from the first to the second questionnaire and limit the validity of your comments. Both questionnaires are linked so that we can connect your personal leadership beliefs to your opinion on the type of cultural changes happening in the Air Force.

Participation to the second distribution of the survey a few days ago was great. Please help in making this one a success also. It really is important, so much so that it will be forwarded to the senior Air Force leadership. Bottom line here: your voice will be heard and how you fill out this set of questionnaires (or don't) will effect the types of educational programs used to train your young officers.

Please pass out the enclosed Organizational Culture Assessment questionnaire to your seminar to be filled out and brief them on the importance, rationale and instructions on how to fill out the questionnaire. Please fill out the questionnaire from your point of view at ACSC. After the questionnaire has been filled out, please put all copies of the form back in the envelope, seal and handcarry to the Dean of Education's Office (DE), Room # 149, and place them in the box labeled Leadership Surveys. Please do this within two days of receiving this package.

You will notice that on the questionnaire we ask you for your name and last three numbers of your Social Security Number or your complete Social Security Number. The names and numbers are used only to match up the different survey inputs and to allow us to find a way to send you this second and a third survey in one year. No connection between any individual participants and their responses will ever be made. After the data is compiled, the name and Social Security Number column in the database will be erased so that no one will be able to trace any response. This is an approved Air Force Study (ACSC, 95-0001), has been approved by the George Washington University ethics board and adheres to the Privacy Act of 1974.

If I can be of any help or if you would be interested in discussing the project in any way, you can reach me at 703-522-0913 or my E-Mail: lafferty@atcall.net
Please tell your seminar that I extend the invitation to them as well.

Again, I know you all are ready to leave but please take the time out to fill out the survey. If we don't get some compiled data on types and dimensions of leadership, future career decisions will continue to be made by leaders applying what was relevant to their time and not ours.

Thank you for your time.

Brad Lafferty

Write In Your Name Here:

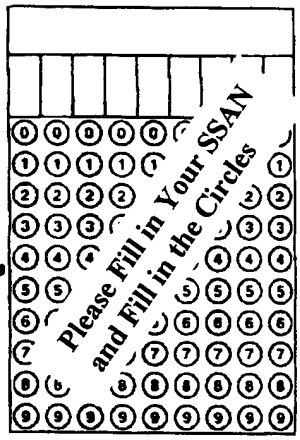
Quick and Easy Instructions On How To Fill Out The Organizational Culture Assessment Questionnaire

INCORRECT MARKS ⊘ ⊗ ◒ ⊙ CORRECT MARK ●

uick and Easy Instructions On How To Fill Out Our Survey

Please use a pencil.

Please write your name at the top of the paper.
We ask your name so we can find you and send you a follow-up questionnaire in one year and match this questionnaire with others you have filled out. Your name is never released and the database does not contain your name.



In the block labeled ID NUMBER, fill in your social security number. Please fill the circles that correspond to the number written in on top.

- If you are an international office put your seminar number in the space

Note: This number is only used for sorting; to align the different questionnaires. We use your SSAN because it doesn't change and you don't have to remember a participant number. No reference to individuals will be made in any way. All limitations to *release* of this number an adhered to. 'Me Privacy Act of 1974 applies.

Please answer the questions (both front and back) from <u>your point of view on the ACSC Culture</u>.
This questionnaire measures the ways that people in your military service generally clank and act. The questions ask you to describe, as best you can, how people typically behave and the sorts of things they generally believe about their service and how it operates.

In giving your answers, the term "organization" is used to mean ACSC from your military organizational, (i.e. USAF, Navy, Army, Marines) view. If you are an international officer the term "organization" is used to mean ACSC from your military organization in your own country

Lt Col Brad Lafferty
AFIT/George Washington Uni
1050 N. Taylor St. Suite #312
Arlington, VA 22201-4737
Voice/Fax: 703-522-0913
E-Mail: blaff@erols.com

When you are done, please return the completed questionnaire to your seminar leader. They will consolidate them and drop them off at the Dean's office.

ıank you very much for your time and interest. We greatly appreciate your help. you would like a copy of our findings or have any questions, comments or commendation please contact me.

	5. Not True	4. Slightly True	3. Partly True	2. Mostly True	1. Completely True
1. people are flexible and adaptable when changes are necessary.					
2. individuals and teams have clearly defined goals that relate to the goals or mission of the organization.					
3. teams often lack the authority needed to get the job done effectively.					
4. we give the highest priority and support to meeting the needs of clients and customers and solving their problems.					
5. people value and make use of one another's unique strengths and different abilities.					
6. people feel that most change is the result of pressures imposed from higher up in the organization.					
7. people and teams are often expected to reach goals which they believe are unattainable.					
8. people believe in teamwork, the "what's in it for us" approach rather than "what's in it for me."					
9. our policies and procedures help us to provide the service our customers and clients want and need.					
10. everyone knows and understands our business objectives and priorities.					

PLEASE CONTINUE ON THE OTHER SIDE

ATTACHMENT 6

TLP Survey Distribution Letter and Rationale for the Third and Fourth Collection of Data (By Mail)

Lt. Col. Brad Lafferty
AFIT-George Washington University
1050 N. Taylor St. Suite #312
Arlington, VA 22201-4737

«Title». «FirstName» «LastName»
«Address1», «Address2»
«City» «State», «PostalCode»

Dear «Title». «LastName»

It has been about a year since you received the first of these questionnaires. This is the second set that we use to compare to the first in the hope of finding out what changes have occurred in your leadership style and preferences since you have been in the field and away from ACSC. First let me apologize if this letter went a circuitous route or if I have your current rank wrong. The DOD has no on-line current database, just individual service databases. Consequently, we have been forced to use the old ACSC database.

As you know, this survey is part of a longitudinal study designed to gauge changes in your leadership style over time and compare it to changes in the Air Force culture. No special style is being sought or, for that matter, is preferable. The original questionnaire data base has been building since 1982, so we in the military will finally have a chance to compare our leadership styles to the population as a whole. It may be hard to believe, but the Air Force has no long term data base that can be used to investigate the nature of leadership. This study is the first step.

Please fill out both questionnaires, The Leadership Profile, the Organizational Culture Assessment Questionnaire and the enclosed demographics sheet. Included in this package are instructions on how to fill out both of the questionnaires as well as a complete rationale (on the back of this letter) on what the study is all about. After you have filled out the questionnaires, please fold both survey forms and the demographic sheet and mail them back in the enclosed envelope.

You will notice that we ask you for your name and last three numbers of your Social Security Number or your complete Social Security Number. The names and numbers are used only to match up the different survey inputs and to allow us to find a way to send you this second and a third survey in one year. No connection between any individual participants and their responses will ever be made. After the data is compiled, the name and Social Security Number column in the database will be erased so that no one will be able to trace any response. This is an approved Air Force Study (ACSC, 95-0001), has been approved by the George Washington University ethics board and adheres to the Privacy Act of 1974.

If I can be of any help or if you would be interested in discussing the project in any way, you can reach me at 703-522-0913 or my E-Mail: lafferty@atcall.net

Thank you for your time.

Brad Lafferty

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Marshall Sashkin, Ph.D.
and
William E. Rosenbach, Ph.D.

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1. Please use a pencil.

2. Please Fill In Your Name. Please fill the circles that correspond to your name.
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   - For example if your social security number would be 291-52-1640 enter 640. If you are an international office put your seminar number in the space
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4. Please turn the questionnaire over and answer the questions from <u>your point of view</u>.
   - For example, the first question would be
     1. I make sure people have the resources they need to do a good job.
   - Please answer all items to the best of your ability, even those that may not seem to apply to you personally.

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Thank you very much for your time and interest. We greatly appreciate your help. If you would like a copy of our findings or have any questions, comments or recommendation please contact me at:

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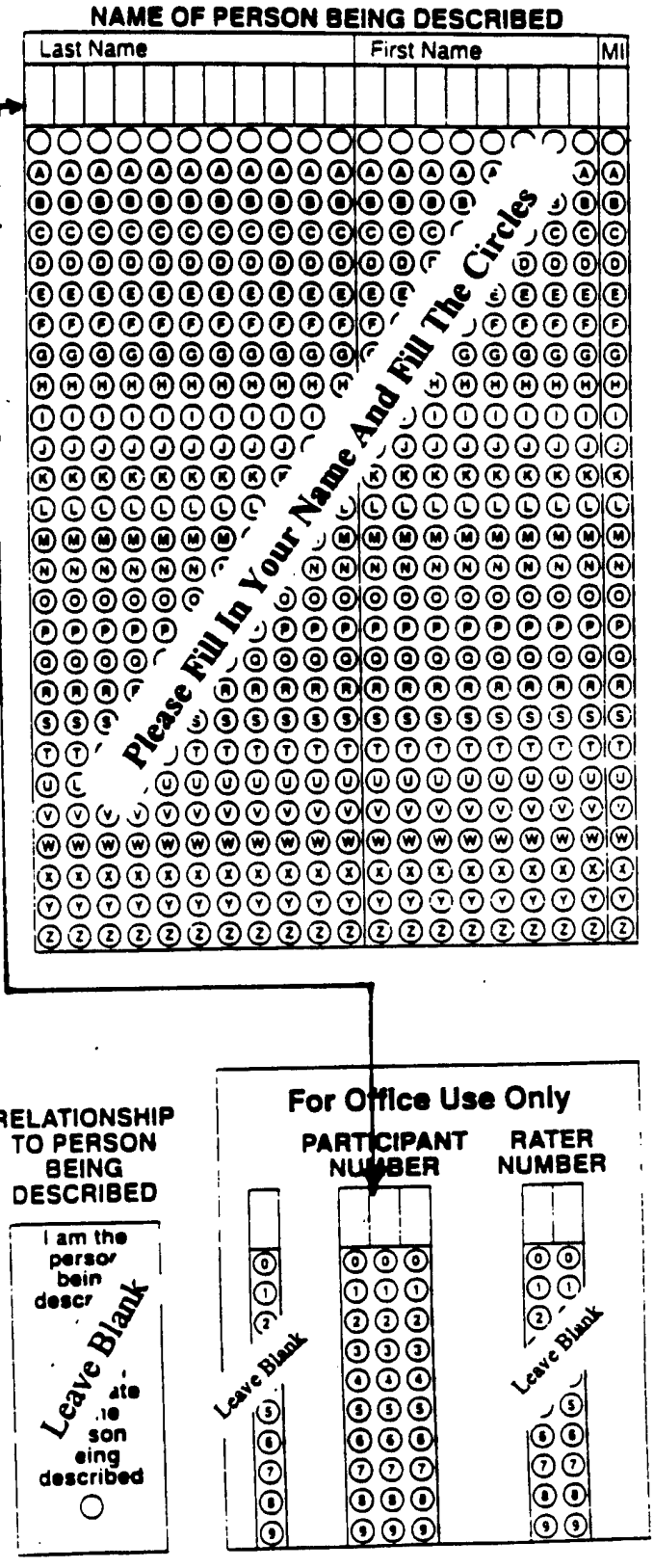

ATTACHMENT 7

Rationale Letter Included in The Mailed Package for the Third and Fourth Collection of Data

Rationale

Why we are asking you to fill out a questionnaire on leadership?

With the success of Desert Storm and the end of the Cold War, the Department of Defense is facing huge drawdowns and reorganizational change. The biggest challenge we face right now is internal, and the biggest issue is what styles of, leadership are most appropriate to carry us through these times successfully. But what is the proper type or style of leadership needed, and what types of leadership are out there in the pool of future leaders? Because the Air Force has no compiled data, a database is imperative. This questionnaire is the first in a two-year study to examine the types of leadership we currently have in our organizations and establishes a baseline. The study attempts to determine the composition of leadership styles by building a transformational leadership profile (i.e., leaders of change by degree) based in the Air Force culture. As this is a baseline questionnaire, it asks that each of you assess your leadership style.

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Quick and Easy Instructions On How To Fill Out The Leadership Profile

Marshall Sashkin, Ph.D.
and
William E. Rosenbach, Ph.D.

Quick and Easy Instructions On How To Fill Out Our Survey

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   - For example, the first question would be
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Thank you very much for your time and interest. We greatly appreciate your help. If you would like a copy of our findings or have any questions, comments or recommendation please contact me at:

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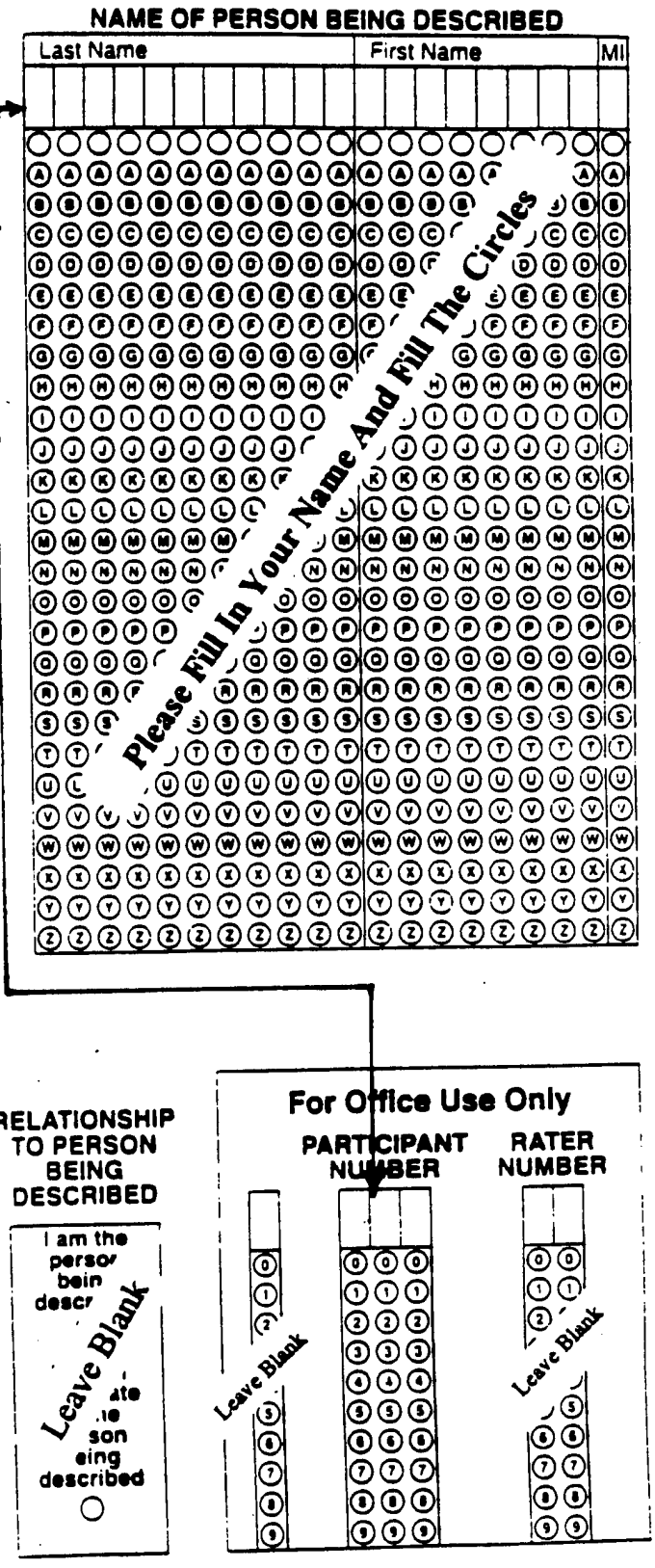

ATTACHMENT 8

Comparison of Old and New ACSC Curriculum

That Was Then, This Is Now

In the fall of 1992, ACSC set a goal of maximizing student learning by (1) promoting faculty excellence and (2) stressing student-centered learning.

THAT WAS THEN	THIS IS NOW
• Two directorates under the commandant-- DE and DS	• Three directorates under the commandant-- DE, DR, and DS
• Computers were for secretaries - Instructors had some Z100s and remote "dumb" terminals • Limited flow of/access to information	• Computer on desk of every instructor; Laptop for every student • Current and capable software • Using the computer essential "to compete" • LAN access • Electronic Bulletin Board • Internet Access • Staff meetings on TV
• Curriculum developed by people who didn't instruct in the classroom (ED); established objectives and determined length of course - disconnect between developers and implementers	• All instructors develop curriculum (ownership of the process)
• Student-led seminars and briefings from set curriculum	• Knowledgeable instructors lead seminars through guided discussion and informal lecture
• High percentage of outside lecturers - less student/instructor interaction	• No more than 15% outside lecturers • Lower ratio of lectures to seminars (ex. only 15% of TACS course is lecture)
• Distance learning program was a separate section within the school - Nonres curriculum not in-synch with resident	• Distance learning lessons now built by faculty teaching resident
• No access to real-time information capabilities	• Combat Applications Facility helps faculty and students to "visualize the battlefield"
• Limited interaction with wargaming	• Wargaming incorporated throughout entire curriculum
• Position papers, not research	• Meaningful research program - Projects executed for and often funded by outside agencies

- Faculty Development Training (broadcast mode)
  - Instructors not "educated' on the subject; rather, told how to "present" the lesson
  - no critical thinking
  - no debate of concepts
- "AGILE FALCON"
  - Stand alone exercise
- Beer hall brawls
- Separate Joint Course
- Several Quality seminars
- 12 independent courses
- Written lesson critiques sent to "curriculum writers" after course

- Faculty colloquia for all books and lessons taught
  - Discuss concepts/content of the teaching plan
  - Outside experts brought to the faculty
  - Teaching to teach
  - New Instructor School
  - Mentor program
- "ACES Dragon"
  - Capstone exercise
  - Integrated with curriculum
- Idea debates
- Joint concepts integrated throughout the curriculum
- Quality issues integrated throughout curriculum
- 9 specific interrelated courses
- Lesson and course critiques and hot washes by the folks who were "in the trenches"
- Continuous student feedback--on line and immediate

ATTACHMENT 9

Air Command and Staff College Curriculum Guide

AIR COMMAND AND STAFF COLLEGE

CURRICULUM PLAN

AIR COMMAND AND STAFF COLLEGE

Air Command and Staff College (ACSC), the Air Force's intermediate professional military education (PME) school, prepares field grade officers (primarily majors and major selects), US civilians, and select international officers to assume military and government positions of higher responsibility. Geared toward teaching necessary leadership skills, ACSC focuses on shaping and molding tomorrow's airpower leaders. The college's academic environment stimulates and encourages free expression of ideas, as well as independent, analytical, and creative thinking. Like our sister-service intermediate PME schools, ACSC is Phase I Joint PME (JPME) accredited.

MISSION

ACSC's mission is to educate midcareer officers to lead in developing, advancing, and applying air and space power in peace and war.

OBJECTIVES

ACSC prepares students to assume future command and leadership responsibilities in campaign planning and execution. To support and enhance this focus, ACSC's graduate-level educational environment:

- Prepares leaders for higher-level command and staff responsibilities.
- Prepares leaders to understand, plan, and execute the joint campaign planning process and components of the air campaign.
- Prepares leaders to think strategically, operationally, and critically to expand and advance the air and space body of knowledge.
- Provides a premier education environment with high quality facilities, resources, and technology.
- Recruits, develops, mentors and places high quality faculty members in support of our mission.

RESIDENT CURRICULUM

ACSC's resident curriculum emphasizes the analytical and practical tools students need as future military leaders. Curriculum will remain much the same except for minor updates. It remains a book and technology-based curriculum exploring the works of many great thinkers and strategists--military and civilian. The students begin their studies addressing the large conceptual issues of war and conflict and end by applying their knowledge of air and space power in a practical application.

This challenging educational environment fosters teamwork and team building between faculty and students and students themselves. The faculty helps students reach higher levels of creative, analytical thought and a deeper understanding of the requisites of command and the application of air and space power.

Duration and Quota

The resident course runs 10 months and approximately 600 officers and civilians, including almost 80 international officers, attend.

Prerequisites and Selection for USAF Officers

Candidates to attend ACSC are selected in conjunction with O-4 promotion boards, with below-the-zone promotees receiving automatic candidate status. A central PME selection board, with major command input, selects the actual ACSC class from these candidates based on their demonstrated potential for assignment to key command and staff positions.

Representative Schedule

Figure 1 below represents the representative curriculum flow. Actual start and end dates will change as the curriculum is updated. Course days include associated simulations and exercises, with the exception of Joint Warrior. Joint Warrior is treated as a separate course, with students receiving a grade that is figured into their overall GPA.

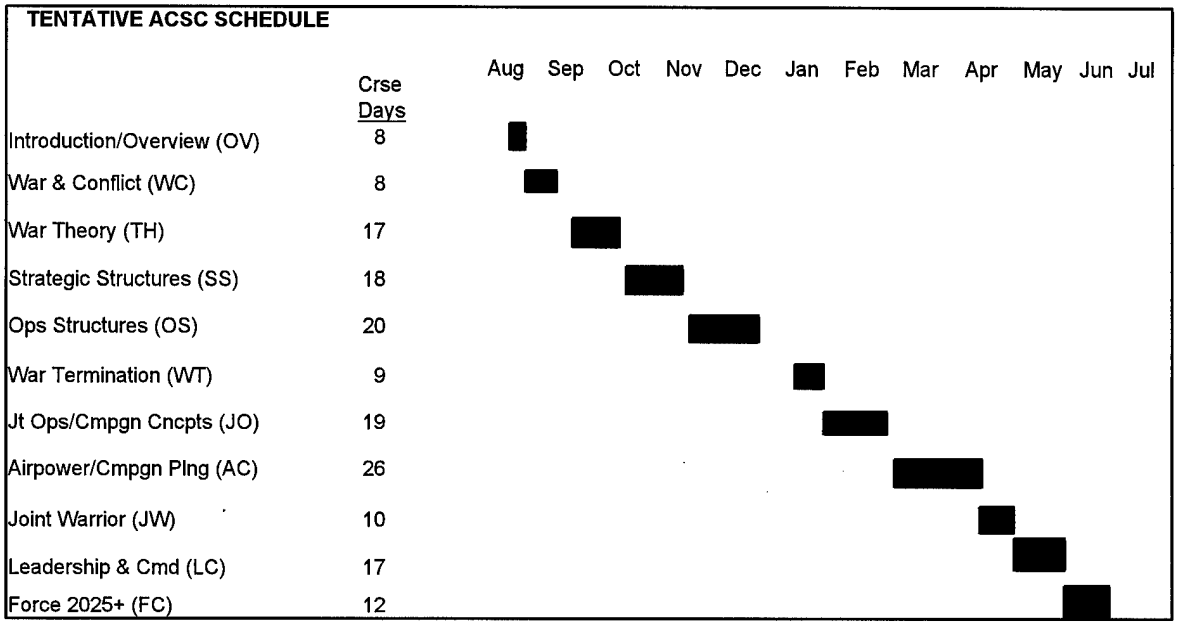

Figure 1

COURSE DESCRIPTIONS

OV 500 - Introduction/Overview

Provides students with an overview of the skills, concepts, research, and principles they will encounter throughout the academic year. Includes an introduction to available technology, research requirements, class member responsibilities, and available services to enhance learning.

WC 500 - War & Conflict

This course sets the stage for the curriculum by: (1) Introducing and defining the concepts (such as actors, motives, objectives, levels of war, and termination strategy) essential to the study of the strategic context of the operational level of war; and (2) clarifying the distinction between war, conflict, and conflict termination. War, conflict and conflict termination are interdependent elements, whose nature and meaning can only be understood fully as part of the social and cultural context in which they occur.

TH 500 - War Theory

The War Theory course is designed to expose the students to the broad spectrum of war theory, defined as the body of thought relating to how societies wage war. The goal is to encourage critical thought about war and provide factual and analytical tools for examining it. It is not a military history course *per se*, but military history is used as a lens through which to examine the development, application, and evolution of key concepts concerning the nature of military power and its application that have withstood the test of time, as well as understanding why others wound up in the "dust-bin of history."

SS 500 - Strategic Structures

This course introduces strategic thought, analysis and introduces power projection instruments. It begins the process of making security assessments and analyses of hostile and friendly centers of gravity. This course gives students the opportunity to look at the basic civil/military leadership power relationships in state and non-state entities. The students are introduced to illustrative case studies as examples of centers of gravity.

OS 500 - Operational Structures

This course is designed to give the student a fundamental understanding of the military instrument of national power required for campaign planning in later blocks of instruction. The course begins by building a strong theoretical understanding of objectives, strategy, and doctrine. The student is prepared for combat planning in the joint environment by lessons on individual service force structure, doctrine, force application, and military operations other than war. Basic principles of logistics, and command and control (C^2) are introduced followed by a review of current US logistics, intelligence, and C^2 capabilities and challenges. The course concludes with an examination of the use of systems analysis to find centers of gravity of military forces.

WT 500 - War Termination

This course presents a conflict resolution process that begins with the formulation of a vision of the desired "end state" at the outset of campaign planning, leading to a resolution in line with national objectives. This course requires students to synthesize information and themes derived from sources provided, as well as from previous ACSC courses, to include concepts, potential missions, agency roles and interactions, and issues fundamental to the conflict resolution process.

JO 500 - Joint Operations & Campaign Concepts

This course introduces the joint operational planning process. After studying the Joint Deliberate and Crisis Action Planning System, this block leads the student to begin selecting campaign options. It also provides the opportunity to begin developing courses of action for traditional warfare as well as military options other than war.

AC 500 - Airpower & Campaign Planning

This course focuses on airpower's role in campaign planning and the linkage of campaign plans to attainment of national objectives. This course uses a campaign planning framework as the basis for mastering the application of operational art in air and space media to achieve national security objectives. The course focuses on how to apply such elements as targeting for effect and measuring success to improve theater campaign planning for air and space forces. To lay the foundation for future exploitation of air and space power in support of national objectives, contemporary issues such as battlefield command and control and emerging technologies are also addressed.

JW 500 - Joint Warrior

This course will expose the students to an "application" through "evaluation" level of airpower learning, using the principles and theories taught at ACSC. The goal is to synthesize the airpower intellectual framework with a realistic airpower application laboratory to enhance the learning experience of airpower employment. Students will apply their knowledge of joint and multinational force employment at the operational level of war. This course integrates the study of campaign planning and the linkage of campaign plans to attainment of national objectives. Joint Warrior is a systemic warfare simulation requiring a dynamic evaluation and appraisal of a master attack plan in execution against a thinking and reacting enemy.

LC 500 - Leadership and Command

The leadership and command course is interdisciplinary in nature, covering key topics such as core values and ethics, quality, accountability, discipline and responsibilities, law/judicial issues, personnel issues (officer and enlisted), political context of leadership, decision-making, crisis leadership, and many others to facilitate critical thinking. Throughout the year, students are exposed to different concepts and ideas of leadership and command to help them analyze and develop their own leadership capacity. Students also examine leadership in our diverse culture to gain a better understanding of how cultural differences in co-workers create new opportunities for the leader to develop creativity, innovation, and initiative. The command phase prepares future squadron/battalion commanders to meet the multiple responsibilities and accountability of command. It provides key views on the role of the commander and the organizational setting for squadron/battalion impacting mission accomplishments. The command phase is designed to bring practical, useful, down-to-earth advice from officers and senior NCOs who have experienced command or who are/have been key advisers to commanders. Once armed with this information, students are challenged to develop a vision and road map of where they want their command to go and then commit it to writing.

FC 500 - Force 2025+

This course examines possible future force structures needed to meet an undefined and technologically accelerating future in the hope of defining, rather than reacting to, change. Historical lessons are used to forecast future trends. Policy, resource allocation, acquisition, employment and power projection issues are applied through a final exam that connects the present to the forecasted future in a series of steps needed to shape and prepare the military.

RS 600 - Research Program

This program has two goals: (1) Challenge faculty and students to think creatively and critically, and (2) contribute to the body of air and space--and joint operational--knowledge. Leaders must be able to tackle tough issues in today's rapidly changing, uncertain environment. Staying on the leading edge of military art requires thinking creatively and critically, and clearly expressing the results of that thought. We expect research to result in publishable papers or materials enhancing the ACSC curriculum in subsequent years and leading to more effective airpower development and employment. An important research concept is "expanding the frontiers of knowledge." To do this, the research program is much more than historical narrative or different combinations of old information. The college expects students and faculty to chart new waters and look at war and conflict from the perspective of rapidly developing technologies, capabilities, and theories.

Computer Simulations and Exercises

ACSC developed a number of multimedia simulations and exercises which challenge students to interactively apply the concepts and skills they have learned. In addition, several interactive primers on the roles and missions of sister Services provide the students with basic knowledge which underpins the rest of the curriculum. Figure 2 is a listing of some of the products developed and used at ACSC.

US Navy Carrier Battlegroup	Operation OVERLORD	Introductory Exercise
USMC Air Ground Task Group	Redball Express	Strategic Level Exercise
USMC Doctrine	Operation Barbarossa	Operational Level Exercise
US Army Operations	Hannibal's Italy Campaign	Crisis Action Planning Exer.
Air Interdiction	Gulf Air Campaign	Defense Resourcing Exercise
Airbase Operability Overview	Airspace Control Overview	Leadership and Command
Air Campaign Planning Tool	Affinity Diagram	Space Operations
Air Force Tactical Air Control System	TQM Seven Mgt. and Planning Tools	Future Forces Structure and Acquisition
Southwest Pacific Campaign	Prioritization Matrix	Battle of Britain
Schlieffen Plan, Aug 1914		

Resident Program Curriculum Summary

Course Title	Academic Contact Hours
Introduction/Overview	20
War & Conflict	21
War Theory	49
Strategic Structures	67
Operational Structures	69
War Termination	25
Joint Operations & Campaign Concepts	78
Airpower & Campaign Planning	73
Joint Warrior	52
Leadership & Command	55
Force 2025+ Course	26
TOTAL Academic Contact Hours	**535**

Figure 3

METHODOLOGY

ACSC established a team approach to learning. Faculty teams develop and teach curriculum. Research teams composed of faculty and students advance the body of knowledge of campaign planning. Auditorium lectures comprise approximately 15 percent of total curriculum hours. This approach allows more time for seminar activities, and provides more active learning and deeper understanding of subjects.

Computer technology use enhances student learning. Our Combat Applications Facility ("Space Lab") allows students and faculty to become familiar with the application of space technology by providing hands-on practice with space equipment. Multimedia computer applications provide prerequisite knowledge and principles, reducing the amount of time spent on knowledge-level material. Also, students have notebook computers to help them synthesize information obtained from seminars, lectures, readings, and research.

OTHER CURRICULUM ACTIVITIES

Commandant's Specials

These "special" presentations enhance the curriculum by giving students and faculty the opportunity to interact with distinguished leaders and experts from across political, economic, or military environments. Speakers past and present include members of Congress, ambassadors, and top civilian and military leaders in the Department of Defense. The Air Force Chief of Staff, Secretary of the Air Force, Representative Newt Gingrich, Mr. Alvin Toffler, Dr. Carl Sagan, Dr. Ted Warner, and Ambassador Joseph W. Twinam are but a few of the speakers who have addressed the ACSC audience.

Field Trips

Each academic year, ACSC conducts a series of field trips complementing and enhancing the curriculum. These field trips provide students and faculty a first-hand look at how the military services train, equip, and employ forces, and how government agencies operate. While the entire class travels to Fort Benning, Georgia, to view Army training, weapons' capabilities, and a live-fire exercise, each of the remaining trips involves approximately 50 students and faculty. In the past, these trips have included visits to: Washington, D.C. for briefings from representatives of the House Armed Services Committee, National

Security Council, and State Department; Jacksonville, Florida, to tour a nuclear submarine and view anti-submarine operations; Huntsville, Alabama, to tour the Marshall Space Flight Center; Norfolk, Virginia, to see Naval air operations and tour an aircraft carrier; Eglin AFB, Florida, to see Air Force weapons' testing facilities, tactical fighter operations, and special operations capabilities; Fort Rucker, Alabama, to view Army aviation training; Camp Lejeune, North Carolina, and Parris Island, South Carolina to observe Marine Air Ground Task Force operations and Marine basic training; and Robins AFB, Georgia, to visit an Air Logistics Center and a long-range surveillance facility.

Exchange Programs

Each academic year, ACSC participates in reciprocal exchange visits with the Royal Air Force Staff College in Bracknell, England; the German Armed Forces Staff College in Hamburg, Germany; the Canadian Forces Command and Staff College in Toronto, Canada, and the Gagarin Military Air Academy in Moscow, Russia. While the exchange program with Russia is relatively new, the program between Bracknell and Maxwell dates back over 40 years. These visits enhance relations and the exchange of ideas, as well as provide a forum for academic exchange. The visits involve faculty members, with briefings on national security, current issues, and roles and missions.

Gathering of Eagles

This unique program stimulates the study of aviation history. Since its inception in 1982, the program has brought over 175 famous aviators from 16 countries to ACSC. While here, the "Eagles" spend time with members of the class, sign lithographs commemorating their achievements, and participate in "Living History" teaching interviews. These interviews allow the students--tomorrow's leaders--to better understand their aviation heritage and learn lessons from those who shaped it.

EVALUATION PROGRAM

The Evaluation Program is designed to give the students and the school feedback on students' progress and the effectiveness of instruction. The Evaluation Department (ACSC/DRV) is responsible for the overall evaluation process. This department administers the grading system, reclama process, and special recognition program; develops, directs, and administers curriculum, faculty, and student evaluations; assists in development and administration of all ACSC surveys; and advises course directors on examination instruments used to grade and measure student academic achievement.

Special Recognition Program

This program recognizes students who demonstrate professional excellence and excel in academics. Based on HQ AETC policy, ACSC can recognize up to 10% of the class as Distinguished Graduates (DGs). With squadron commander approval, the top 10% of the students excelling in both professional qualities and academics/research will be recognized as DGs.

Students are selected for the following awards as prescribed in ACSC OI 36-118. This ACSC OI provides specific detailed selection criteria for the awards listed below. At the commandant's discretion, additional awards may be given to recognize exceptional contributions to the advancement of airpower.

Commandant's Award for Excellence recognizes the student who makes the most significant contributions to the prestige and well being of the school through professionalism, research, and academic achievement. The top distinguished graduate will receive this recognition.

Secretary of the Air Force Leadership Award is presented to the student who demonstrates the most outstanding leadership during the academic year. Students excelling in professional qualities are considered for this award.

Wright Brothers Officership Award recognizes the student who made the most outstanding contribution to the class success. Students excelling in professional qualities are considered for this award.

Commandant's Award for Academic Excellence recognizes the student(s) who excel(s) academically. Selection is based on achieving the highest academic cumulative grade point average.

Commandant's Award for Research Excellence recognizes the top overall student research project that significantly contributes to ACSC's prestige and mission.

Society of Strategic Air Command ACSC Research Excellence Award recognizes students for the research project which makes the most outstanding contributions to the advancement of airpower.

ACSC's **Outstanding Research Award** recognizes students for their contributions, innovative ideas, and solutions to real world problems through classical research. The Dean of Research will select the top research project in this category for this award.

ACSC's **Outstanding Application of Technology Award** recognizes students for developing the top research project applying technology.

ACSC's **Outstanding Development Study Award** recognizes students for the top research project in this category.

Student Evaluation

The ACSC grading system is used to evaluate student performance. Graduation requires satisfactory completion of all required courses and course activities while maintaining a 2.00 or higher cumulative GPA.

Student Performance Policy

Academic Monitor Status. Students who drop below a 2.57 GPA or exhibit substandard professional performance (determined by the instructor, operations officer, and squadron commander) are placed on Academic Monitor Status. This is a temporary status intended to help the student attain and maintain acceptable performance. The division operations officer administers monitor status of students, provides counseling, and coordinates assistance from other sources through the squadron commander. Students are required to develop a plan (with the division operations officer's assistance) to correct substandard performance. The division operations officer removes the student from monitor status when the cumulative GPA reaches 2.57 or upon correction of the professional deficiency.

Academic Probation. Students who fall below a 2.00 GPA are placed on probation and considered for disenrollment by the Commandant's Review Board (CRB). The CRB is chaired by the vice commandant and includes all four deans as board members. The CRB recommends appropriate action to the commandant. Upon commandant approval, students are disenrolled or placed on academic probation. Students who complete ACSC with a GPA lower than 2.00 will receive a Certificate of Attendance versus a graduation diploma. Additionally, the student's training report will reflect appropriate comments to indicate their marginal performance.

Grading System

The ACSC grading system is based on the "whole person" concept. Performance is measured by demonstrated professional qualities and academic/research achievement. With squadron commander approval, the top 10% of those students excelling in both professional qualities and academic/research achievement will qualify for distinguished graduate consideration.

Although students are expected to meet high professional quality standards, they will have 12 opportunities to be recognized for exceeding standards--once for each course by the course instructor (nine academic courses plus Joint Warrior); once for the research project by the faculty research advisor; and once again by the division operations officer (operations officer's recognition is based on input from peers, faculty, and their observations of demonstrated professional excellence). In the grade report sample below, the "ES" indicates exceeds standards in professional qualities. Students must equal or exceed the average number of ES's as follows for distinguished graduate consideration:

Total # of ES's / # of Students = Mean (Note: Must equal or exceed mean)

Students exceeding professional quality standards will be expected to demonstrate the following actions. He/she will: Skillfully lead group activities and inspire others to follow. Significantly contribute to the learning environment by participating fully in all activities. Initiate group interaction in support of team and school objectives/goals. Be a stimulating communicator, clearly focused, explicitly clarifying principal ideas. Promote active and beneficial discussion between all members of a seminar or research group. Skillfully incorporate readings into discussion concepts and precisely relate discussion to objectives. Read situations and people and act appropriately to foster a cohesive team. Act as a dynamic follower and support others when they are in a position of leadership. Be fully committed to the school program. Actively seek ways to improve the officership of self and others. Measure his/her success in relation to the team accomplishments. Advance the academic environment in all forums by fostering a cooperative spirit for others to follow. Be a seminar role model of integrity and impeccable honesty. Be the model of military professionalism which other officers imitate and follow. Set and enforce the highest standards of conduct and behavior. Be a positive representative of ACSC to the community.

Academic/research achievement is evaluated by assigning a grade using the 4.0 (A-F) grading system. Each course and research project grade will receive a weighted grade point average based on academic hours. This weighted grade is then used to calculate a cumulative grade point average (GPA). Figure 4 is a sample cumulative grade report.

Course	Hours	Hours	Grade	GPA	Points	Points	GPA	Prof
War & Conflict	1.14	1.14	A	4.00	4.56	4.00	4.00	ES
War Theory	2.76	3.90	B	3.00	8.28	12.84	3.29	
Strategic Structures	2.76	6.66	B	3.00	8.28	21.12	3.17	
Operational Structures	3.41	10.07	C	2.00	6.82	27.94	2.77	
War Termination	1.46	11.53	A	4.00	5.84	33.78	2.93	ES
Joint Ops/Cmpgn Concepts	3.09	14.62	B	3.00	9.27	43.05	2.94	ES
Joint Warrior	1.46	16.08	B	3.00	4.38	47.43	2.95	ES
Airpower & Cmpgn Planning	3.25	19.33	B	3.00	9.75	57.18	2.96	
Force 2025+	1.95	21.28	A	4.00	7.80	64.98	3.05	ES
Leadership & Command	2.11	23.39	A	4.00	8.44	73.42	3.14	
Research Project	12.60	36.00	B	3.00	37.80	111.22	3.09	
Ops Officer								ES
Total	36.00	36.00					3.09	6

Figure 4

*Academic grade sample indicates only one examination given for each course--some courses will have more than one test. If a course has two tests, equally weighted, and the student receives a grade of "A" on the first and a "B" on the second, the course GPA would be 3.50.

Points = Course Hours x Course GPA
Cumulative GPA = (Cumulative Points / Cumulative Hours)

4.0 Grading System: A = 4.00-3.43; B = 3.42-2.57;C = 2.56-1.71; D = 1.70-.96 (Note: Used to indicate applicable letter grade for the cumulative GPA)
Note: Above figures are rounded to the fourth decimal using an Excel spreadsheet. Courses and hours are subject to change.

Individual Course Credit Hours and Evaluation Methodology

Course Title	Course Credit Hours	Final Evaluation Type
War & Conflict	1.14	In-Class Group Project; Take-Home Essay Exam
War Theory	2.76	In-Class/Take-Home Essay Exam
Strategic Structures	2.76	In-Class Essay Exam
Operational Structures	3.41	Take-Home Essay
War Termination	1.46	In-Class Essay Exam
Joint Ops and Campaign Concepts	3.09	Quizzes, Briefing
Airpower & Campaign Planning	3.25	Take-Home Essay Exam
Joint Warrior	1.46	40% - Seminar OPLAN & MAP (Master Attack Plan) 40% - Execution of OPLAN and MAP 20% - Individual performance
Leadership & Command	2.11	In-Class, Briefing & Essay Exam
Force 2025+	1.95	In-Class Group Project; Take-Home Essay Exam
Research	12.60	Panel graded.

Figure 5

ACSC/DRV will provide students and operations officers a grade report following each completed course that will include their cumulative GPA.

Grade Reclama Process

Students are strongly encouraged to resolve grade disagreements with their course instructor. The formal reclama process is provided to re-grade a written examination when the course instructor and student cannot resolve a disagreement. The student submits a written reclama request to ACSC/DRV within 3 working days of receiving the test results. The request will simply state the reasons the grade should be higher. ACSC/DRV will schedule a reclama panel that the curriculum department chairman will chair and convene. The panel will include the course director and another course instructor who taught the specific course. The department chairman may substitute members at their discretion. These three members will re-grade the examination and review the reclama request. The panel may raise, retain, or lower the assigned grade. The panel chair will then notify the student of the panel's findings.

The formal reclama process is also available for reconsideration of a research project grade. The aforementioned policy for reclama requests applies. The Dean of Research will chair a panel that includes two to three additional research graders. Once re-graded, the panel chair will notify the student of the panel's findings.

Based on the nature of oral examinations, the above reclama process does not apply. If an oral presentation is in question, the course instructor(s) will resolve the issue by determining the final grade. The curriculum department chairman will resolve other grade disagreements based on non-academic reasons (e.g., a take-home examination turned-in late and assigned a lower grade). If this happened for

reasons beyond the student's control, the course instructor may change the grade or refer it through the course director to the department chairman for consideration.

When grades are changed by the academic/research department, the department will notify ACSC/DRV. DRV will provide the student and appropriate division operations officer a corrected grade report.

Survey Requirements:

Student Leaders will select at random at least four students from their seminar to evaluate daily lessons. All students will complete end-of-course and end-of-year surveys. ACSC/DRV will publish statistical survey results each week for everyone to view and forward student written comments to the appropriate course director.

Curriculum/Faculty Evaluation

Student comments on curriculum and instruction are vital to ACSC's continuing improvement efforts. The entire student body has the opportunity to evaluate daily curriculum activities through the academic schedule. Likewise, at the end of each course there is a 10 question automated survey provided for student feedback. Each student will also complete an end-of-year electronic survey to evaluate his/her entire ACSC experience.

BOOK LIST

Resident Curriculum Book List

The ACSC resident curriculum is book-based. This list shows the books issued to students during AY96. While this list changes a little from year to year, it illustrates the types of books our students are required to read. In addition to these, class members are required to read a number of articles, case studies, and government publications.

AUTHOR	TITLE
Addington	*Patterns of War Since the 18th Century*
Allison	*Rethinking America's Security*
Allotey	*Planning & Execution. of Conflict Termination*
Atkinson	*Crusade: The Untold Story of the Gulf War*
Barnett	*Future War*
Bennis	*On Becoming a Leader*
Blainey	*The Causes of War*
Blank	*Conflict, Culture and History* (B-45)
Builder	*The Icarus Syndrome*
Campen	*The First Information War*
Chaliand	*The Art of War in World History*
Clausewitz	*On War* (Princeton version)
Clodfelter	*Limits of Airpower: American Bombing of North Vietnam*
Cohen	*Military Misfortunes*
Corum	*Roots of Blitzkrieg*
Cox	*Cultural Diversity in Organizations*
Davis	*Carl A. Spaatz and the Air War in Europe*
Douhet	*The Command of the Air*
Drew & Snow	*From Lexington to Desert Storm*
Drew	*Making Strategy* (B-23)
Dupuy	*A Genius for War*
Engles	*Alexander the Great & the Logistics of the Macedonian Army*
Fadok	*John Warden & John Boyd: Airpower's Quest* (T-29)

Fuller	*The Generalship of Alexander the Great*
Gansler	*Defense Conversion: Transforming the Arsenal of Democracy*
Gardner	*On Leadership*
Gilder	*Microcosm*
Gill	*Essays on Strategy IX*
Gleick	*Chaos: Making a New Science*
Gordon	*The General's War*
Griffin	*ACTS: The Untold Story*
Hanle	*Terrorism: The Newest Face of Warfare*
Hansell	*The Air Plan that Defeated Hitler*
Hartman	*America's Foreign Policy in a Changing World*
Hastings	*The Korean War*
Head	*The Eagle in the Desert*
Horne	*The Price of Glory*
Hosmer	*Psychological Effects of US Air Operations in Four Wars 1941-1991*
House	*Toward Combined Arms Warfare*
Hughes	*Leadership: Enhancing the Lessons of Experience*
Hutcherson	*Command and Control Warfare: Putting Another Tool in the Warfighter's Data Base*
Iklé	*Every War Must End*
Kenney	*General Kenney Reports*
Khalizad	*Strategic Appraisal 1996*
Kissinger	*Diplomacy*
MacFarland	*America's Pursuit of Precision Bombing*
Magyar	*Challenge & Response* (B-56)
Manchester	*American Caesar*
Mann	*Thunder & Lightning* (B-2)
Mantz	*The New Sword* (R-14)
Mark	*Aerial Interdiction in Three Wars*
Mather	*MIA: Accounting for the Missing in Southeast Asia*
McFarland	*To Command the Sky*
McPeak	*Selected Works*
Meilinger	*10 Propositions Regarding Air Power*
Mierzejewski	*Collapse of the German War Economy*
Mitchell	*Winged Defense*
Momyer	*Air Power in Three Wars*
Murray	*Strategy for Defeat* (B-12)
National Defense University (NDU)	*Strategic Assessment 1995*
NDU	*Strategic Assessment 1996*
Pagonis	*Moving Mountains*
Papp	*Contemporary International Relations*
Paret	*Makers of Modern Strategy*
Peterson	*The Road to 2015: Profiles of the Future*
Purkitt	*World Politics: 96/97*
Reynolds	*Heart of the Storm* (B-55)
Rinaldi	*Beyond the Industrial Web*
Schein	*Organizational Culture & Leadership* (2nd ed.)
Schwartau	*Information Warfare*
Schwartz	*The Art of the Long View*
Schwarzkopf	*It Doesn't Take a Hero*
Seabury & Codevilla	*War: Ends and Means*
Shulsky	*Silent Warfare*
Shultz	*Future of Airpower* (B-48)

Shultz	*In the Aftermath of War, Just Cause* (B-51)
Sigal	*Fighting to a Finish: Politics of War Termination*
Singer	*Passage to a Human World*
Smith	*Taking Charge*
Sun Tzu	*The Art of War*
Taylor	*Military Leadership: In Pursuit of Excellence*
Tilford	*Setup* (B-40)
Timmons	*Commanding an AF Squadron* (B-9)
Toffler	*War and Anti-War*
Tuchman	*The Guns of August*
Tunner	*Over the Hump*
Van Creveld	*Airpower and Maneuver Warfare*
Van Creveld	*Supplying War*
Van Creveld	*The Transformation of War*
Warden	*The Air Campaign: Planning for Combat*
Watts	*Foundations of US Air Doctrine* (B-8)
Weigley	*The American Way of War*
Winnefeld	*Joint Air Operations: Pursuit of Unity of Command and Control, 1942-1991*

OTHER PROGRAMS

International Officer Program

International officers have attended ACSC every year since 1946. During its 49-year history, the college graduated 2,450 officers from 92 nations. The most recent graduating class included 76 officers representing 55 countries. Before attending ACSC, international officers attend an 8-week preparatory course conducted by the International Officer School. This course increases their ability to speak and understand the English language, and familiarizes them with the United States Air Force's organization and mission, as well as US customs and activities. In the past, international officers graduated after completing 7 months of the 10-month course. Beginning with the 1994 Class, international officers have attended ACSC the entire academic year, further enhancing the ACSC learning experience. During the year, these officers participate in field trips that supplement curriculum objectives. As part of the Department of Defense information program, they tour Washington, DC, and military/aerospace facilities in Alabama, Florida, Georgia, and Nevada.

Athletic Program

In concert with academic excellence, the ACSC philosophy calls for physical and social development. To promote these goals, the college offers an athletic program focused on the social aspect of sports rather than competition. The mandatory part of the students' program consists of slow-pitch softball and volleyball. Also, students and staff may participate on competitive basewide intramural and varsity teams in volleyball, golf, soccer, basketball, and other sports.

Fitness Program

The fitness program is based on education and participation in a regular (3-5 times a week) exercise program--the type of exercise is up to each individual. The fitness program also includes fitness lectures and unique physical challenges that promote aerobic activities and cross-training. Regular participation helps members pass the annual aerobic test (cycle ergometer), but more importantly, helps ensure military members are physically prepared for military contingencies.

Wellness Program

This program is based on education and evaluation. Experts lecture on cardiovascular fitness, stress, and nutrition. Along with the annual aerobic test, individuals are voluntarily tested for cholesterol levels, blood pressure, body fat, etc. From these tests, individual wellness reports and exercise profiles are produced. This program is also available to spouses.

Spouse Program

This program is offered to resident student spouses to help integrate them into the ACSC experience. It offers hundreds of hours of opportunities for spouses to learn, grow, and most importantly, share the ACSC experience with students and faculty. It acquaints spouses with the college's academic requirements, increases their awareness of current events and DoD issues, and provides opportunities for personal growth and development. Participation is completely voluntary and the spouses determine the program's scope and direction.

INITIATIVES

Curriculum Advisory Committee (CAC)

Formed during AY96, the CAC's purpose is to provide high-level oversight across the entire ACSC curricula (resident and distance learning) and high-level guidance to the Department Chairs and Course Directors. The CAC is responsible for reviewing the entire ACSC curricula and then making recommendations to the Dean of Education (DE). The CAC:

- Will set strategic objectives and lay out guidance for how each course contributes to the overall curricula.
- Will make broad recommendations on overall curricula direction, scope, and content as well as more specific recommendations on each course's scope, content, readings, methodologies, and technology materials.
- Is accountable to the DE and through the DE to the ACSC senior leadership.

Course "Lessons Learned" Meetings

Initiated during AY96, "Lessons Learned" Meetings capture course conclusion and share those lessons with future course developers. These meetings, held within 30 days of course completion, document course successes and problem areas allowing continual improvement of a dynamic curriculum.

Advanced Academic Degree (AAD) Program

The AAD program offers faculty and staff officers the opportunity to pursue an Air Force-sponsored PhD in academic areas applicable to the ACSC curriculum. Upon PhD completion, the officer returns to ACSC for at least three years, applying their advanced academic background to enhance and augment the curriculum.

ACADEMIC CREDIT RECOMMENDATION

The American Council on Education (ACE) reviewed the resident and associate curricula and has approved 27 semester hours of graduate credit for our students. Students are awarded 9 semester hours in military history and evolution of strategic thought, 6 hours in regional studies, 6 hours in defense resource management, and 6 hours in defense policy/national and international security. This was "grandfathered" to August 1989, making all ACSC graduates enrolled since then eligible to apply this recommendation to their personal educational endeavors.