

The Pennsylvania State University

The Graduate School

College of Public Affairs

**EVALUATION OF STRATEGIC LEADER COGNITIVE
DEVELOPMENT
THROUGH DISTANCE EDUCATION**

A Thesis in

Public Administration

by

Susan R. Myers

Copyright 2007 Susan R. Myers

Submitted in Partial Fulfillment
of the Requirements
for the Degree of

Doctor of Philosophy

May 2007

The thesis of Susan R. Myers was reviewed and approved* by the following:

James T. Ziegenfuss
Professor of Management and Health Care Systems
Thesis Advisor
Chair of Committee

Steven A. Peterson
Professor of Politics and Public Affairs
Director, School of Public Affairs

Robert F. Munzenrider
Associate Professor of Public Administration

Steven A. Melnick
Associate Professor of Education

*Signatures are on file in the Graduate School.

Abstract

This study investigates the effects of graduate level distance education in the cognitive development of strategic level leaders. Strategic leaders as public administrators use cognitive skills to provide vision, direction, and purpose for organizational development. Distance education programs contribute to strategic leader cognitive development with minimal disruption to their professional and personal environment since the curriculum is accessible through online delivery means.

Both quantitative and qualitative measures such as a survey instruments, focus groups, and individual interviews were used to evaluate leader cognitive development through distance education. Senior military officers enrolled in the U.S. Army War College (USAWC) Class of 2007 Distance Education Program completed the Modified Career Path Appreciation (MCPA) survey instrument at the beginning and the end of the first year of the program. The MCPA survey quantitatively and qualitatively measured respondent preference for differing levels of cognitive complexity.

The MCPA survey is based on Elliot Jaques' Stratified Systems Theory (SST) that links cognitive capability to strategic, general, and production levels of leadership. The MCPA survey predicts strategic leader potential providing there is no intervention in the cognitive growth over time. This study incorporated a paired t-test, and correlation analysis to evaluate changes in the respondents' level of cognitive complexity as a result of completing the first year of the distance education program.

The quantitative and qualitative data indicated there was significant increase in leader cognitive development for respondents that completed the first year of the distance education program. The data indicated that online networks, application of the program material to the respondents' experience, and discourse through the forums supported leader cognitive development. USAWC provides instruction for over 300 senior leaders each year through distance education.

This study contributes to the body of public administration theory and practice by demonstrating that leaders develop strategic level cognitive skills through distance education programs. These findings are important to officials who are considering the role of distance education in the professional development of future strategic level leaders in public administration. Further research is needed to determine how distance education programs can be used more effectively for leader cognitive development.

Table of Contents

List of Figures.....	vi
List of Tables.....	vii
Acknowledgements.....	viii

Chapter 1. Introduction.....1

Strategic Leader Development through Distance Education	
Cognitive Development of Military Leaders through Distance Education	
Purpose and Overview of Study	
The Organizational Setting	
Conclusion	

Chapter 2. Literature Review and Conceptual Framework23

Overview of Leadership Theory	
Characteristics of Strategic Leader Cognitive Development	
Strategic Leader Development as an Open System	
Roles of Strategic Leaders in Organizations	
Stratified Systems Theory (SST): A Strategic Leadership Model	
Conclusion	

Chapter 3. Methodology.....62

Overview of Army War College Distance Education Program	
Distance Education System and Evaluation Requirements	
Research Question	
Participants and Instruments	
Research Procedures	
Limiters and Delimiters of this Study	
Conclusion	

Chapter 4. Results and Analysis.....95

Overview of Study Results and Analysis	
Demographical Data	
Quantitative and Qualitative Data Results and Analysis	
Analysis of Control Group	
Triangulation of the Data	
Analysis of Data Using an Organizational Subsystems Model	
Conclusion	

Chapter 5. Recommendations and Conclusion.....138

Overview of Study Recommendations and Conclusion	
Contributions of Study to Leadership Theory and Practice	
Summary of Findings	
Recommendations for Future Research	
Concluding Remarks	

Appendix A. Research Instruments.....	162
Modified Career Plan Appreciation Survey	
Focus Group/Interview Questions and Reporting Format	
Appendix B. IRB Approval	176
Appendix C. Approval for Use of MCPA Survey Instrument (Stamp personal correspondence, 2005)	178
Appendix D. Data Tables	179
References.....	192

List of Figures

1.1	Model of Strategic Leader Development through Distance Education.....	16
2.1	Strategic Leader Characteristics and Performance: A Research Model	38
2.2	Open Systems of Strategic Leader Cognitive Development through Distance Education	40
2.3	Organizational Subsystems that Impact Strategic Leader Cognitive Development through Distance Education	42
4.1	A Model of Organizational Subsystems that Affect Strategic Leader Cognitive Development through Distance Education	126
5.1	A Model of How Distance Education Contributes to Strategic Leader Cognitive Development.....	145

List of Tables

2.1	Doctrinal Leadership Framework of Competencies by Leadership Levels....	29
2.2	Comparison of Leadership Models.....	31
2.3	Leader Development Model	47
2.4	Institutional Stratum of Leadership Domain and Responsibility.....	52
2.5	Institutional Stratum of Leadership Domain	55
3.1	Department of Distance Education Curriculum Schedule.....	67
3.2	Summaries of MCPA Survey, Focus Groups and Interview Protocol.....	71
3.3	Overview of Study Instruments and Data Sources.....	76
3.4	MCPA Survey Responses to Levels of Organizational Leadership.....	79
3.5	Comparison of MCPA, Focus Group, and Interview Protocol.....	84
3.6	Research Design Milestones.....	89
3.7	Administration of Focus & Individual Interviews.....	91
4.1	Demographics of the Treatment and Control Group.....	99
4.2	Correlation Analysis of Demographic Factors.....	101
4.3	Summary of MCPA Survey Pre and Post Test Treatment Group	107
4.4	Summary of MCPA Phrase Sets for the Control Group.....	110
4.5	Analysis of Qualitative Data.....	112
4.6	Summary of Triangulated Study Data	122
5.1	Revised Institutional Stratum of Jaques' Leadership Responsibility and Domain Based on Contemporary Organizational Structure	141
5.2	Contributions of Distance Education to Strategic Leadership.....	142
5.3	Examples of Cognitive Development as a Result of Distance Education....	147
5.4	Strategic Stratum of Leadership Domain and Responsibility.....	151

Acknowledgements

It is with gratitude that I acknowledge the men and women that serve in the U.S. military and especially the U.S. Army War College Distance Education students that supported and participated in this research. Special thanks to my family and colleagues at the U.S. Army War College for their support and guidance. I would like to acknowledge Dr. Charles Krupnick for his editorial support, the Army War College Librarians, and Mrs. Sally Brooks for their assistance in gathering references and data. Dr. Craig Bullis, Dr. Diane DiClemente, Dr. Thomas Williams, Dr. Harry Yarger, and Dr. Jeffrey Groh provided technical support. I am especially indebted to Dr. James Ziegenfuss for his mentorship as my committee chairman and teacher. I would like to acknowledge the memory of Dr. Rupe Chisholm who served as my initial advisor and Dr. Beverly Cigler who served as my advisor through the comprehensive exam process.

Chapter 1 Introduction

Frederick C. Mosher addressed the need for public leaders to pursue professional development and found that governments allow universities and professional educators to determine the criteria and choices in producing future professionals (Mosher 1982). Distance education is one of the venues that educators are using in delivering professional development programs to prepare leaders for future roles such as contending with complexity and long term planning requirements. Leaders are increasingly using distance education programs to pursue professional development opportunities, but there are few studies that have assessed how well distance education programs are contributing to strategic leader development.

Strategic leaders are defined in this study as those who are in the highest level of leadership in organizations and are responsible for formulating organizational visions, leveraging resources, and overseeing policy performance. Leaders at the strategic level shape the organizational culture and values that are important in developing global and national interests and partnerships. Strategic leaders in public organizations like the military, scientific, and educational institutions encourage cognitive skill development for visioning to anticipate and manage change.

Cognitive development is defined as mental skills such as reasoning, intuition, and perception that help to acquire knowledge. Strategic leaders use their cognitive skills to process complex information into meaningful concepts that contributes to learning, evaluation, and integration. The environment at the highest levels of organizations requires that strategic leaders contend with volatility, uncertainty, complexity, and ambiguity (VUCA) . Strategic leaders need to have a broad

education and experience in order to create visions that have long term implications in policy making. Distance education programs are helping to develop strategic leaders' cognitive competencies by exposing them to complex course materials and case studies. It is important to evaluate the effectiveness of these programs to determine the best ways to prepare leaders for future strategic level challenges.

Distance education programs are an increasingly popular way for busy and resource constrained senior leaders to develop cognitive thinking skills through informational and technical networks and sources. Studies in peer reviewed journals have found that informational sources, simulations, and writing requirements in distance education programs contribute to development of cognitive skills such as reasoning, perception, and intuition. New technologies are being incorporated into distance education programs such as threaded discussions to facilitate group discussions. Online educational systems contribute to the way strategic leaders develop cognitive thinking skills and execute decision making processes because leaders increasingly managing information through electronic systems.

The field of distance education is defined as the acquisition of knowledge through technological systems at locations outside of classrooms. Dr. Michael G. Moore's definition of distance education is used in this study since it encompasses many of the terms and ideas from a variety of academic studies. Moore advocates that "Distance education is planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, special instructional techniques, special methods of communication by electronic and other technology, as well as special organizational and administrative arrangements"

(Moore 1996). Clark and Mayer found that distance education helps leaders to be better informed and contributes to their ability to perform . This study is designed to examine how distance education course design, and organizational systems contribute to strategic leader cognitive development.

Many strategic leaders use distance education programs to develop cognitive thinking capabilities because these programs provide leaders access to quality educational course material and learning networks . Distance education programs are thought to enhance leader cognitive skills such as perception, intuition, and reasoning because online networks and forums enable leaders to apply a diverse body of knowledge to their professional experiences. Leaders learn from extensive networks of graphics and text in distance education programs and then integrate this new knowledge with existing knowledge in their long term memory. When leaders apply their long term memory to their experience, they develop ways to perform strategic level tasks such as visioning. Leaders and educators are continuously evaluating and refining graduate level distance education programs to improve programs and enhance leader cognitive development.

Research studies about distance education suggest that some online educational programs are contributing to strategic leader professional development by expanding knowledge through technical and informational networks (Lape and Hart 1997; Rahm and Reed 1997; Pacey and Keough 2001). Distance education networks provide both hierarchical and lateral forms of communication that are important in developing strategic leader knowledge for policy making and management. Future

strategic leaders need access to a wide variety of information networks to synthesize patterns of development that support long term planning and decision making.

Strategic leaders are often drawn to distance education for professional development because of the accessibility to academically rigorous programs, the self-directed, adult learning style, and the opportunity to develop collaborative networks. Adult learners tend to be practical problem solvers that are motivated by professional advancement and find online instruction matches their learning style. Graduate level distance education professionals are generally older with extensive college and work experience. The population of respondents in this study are senior military officers and the majority have graduate degrees as well as diverse professional career experiences. This study specifically examines the cognitive development of senior military officers enrolled in the Army War College Distance Education Program.

The intent of this study is to contribute to the body of knowledge of leadership literature concerning the efficacy of distance education in the cognitive development of strategic leaders. This study may help identify how distance education programs contribute to strategic leader cognitive development. The field of strategic leader cognitive development through distance education is relatively new since many graduate level distance education programs have been accredited only recently.

Strategic Leader Cognitive Development through Distance Education

There are limited numbers of studies about leader cognitive development through distance education programs and some of the studies have some contradicting findings. For example, some studies find that higher education distance education

programs are not as widely accepted by administrators as traditional education programs because of the lack of personal interaction (Schuhmann, Cawley et al. 2000). Other studies find that distance education programs are as effective as traditional education programs in student cognitive development (Gunawardena, Wilson et al. 2003). Traditional education programs seem to be favored over online education programs by many strategic leaders despite the growing number of online programs. Public administrators generally have limited experience and understanding of distance education programs since many of the programs began after their formal education was completed. Although there are many graduate level distance education programs today; additional research data and experience with course delivery, assessment techniques, and feedback systems is needed to continue to enhance leader development.

Public and private organizations are increasingly using distance education for strategic leader professional development because these systems are accessible and utilize diverse educational methodologies that facilitate learning and discovery. The Department of Defense offers a number of distance education programs to promote professional development from the lowest to the highest levels of leadership. Distance education programs also contribute to higher rates of personnel recruiting and retention because many of the distance education programs are free or subsidized. Students that successfully complete the U.S. Army War College Distance Education program of study are awarded a Master of Strategic Studies degree at no cost to the student.

Military senior service colleges are also promoting intergovernmental professional development with enrollments that include a variety of governmental and international agencies. The Army War College, for example, offers strategic studies through a distance education program that has an enrollment of nearly 450 students each year. Students are selected to attend the Army War College from a variety of federal agencies such as the State Department and foreign governments in addition to the U.S. uniformed services. The shared distance education experience contributes to intergovernmental and international partnerships that are important to long term strategic relations because of the growing numbers of civil-military interactions.

The body of leadership literature and research studies suggests that distance education aids in the development of strategic leader cognitive abilities on a global basis. Extensive online information networks available through distance education programs extends the ability of students and faculty to interact in a wide range of issues (Jacobs and Jaques 1990; Bass 1998; Avolio 1999; Cranton and King 2003; Heikkila and Isett 2004). Distance education programs are evolving with the development of new technologies such as simulations and interactive media. Additional studies are needed to evaluate the effect of distance education systems in strategic leader development so that public administrators can develop plans for future professional development.

This study incorporates several theories, models, and frameworks that are described in Chapter 2. Elliot Jaques' Stratified Systems Theory (SST) associates strategic leader cognitive capacity and the ability to contend with increasing complexity and long term planning capabilities at least ten years in the future. Dr.

Gillian Stamp worked closely with Elliot Jaques to develop the Modified Career Path Appreciation (MCPA) survey instrument. The MCPA is used in this study as a measure of individual leader cognitive development as a result of completing the first year of the distance education program. The development of leader cognitive skills results from a complex interaction of individual, organizational, and environmental factors.

Leader cognitive development is an open system consisting of inputs, processes, and outputs. Leaders are exposed to environmental factors that contribute to cognitive development. This study incorporates the use of the organizational model of subsystems to assess how culture, psychosocial, structural, technical, and management contributes to strategic leader development. Examination of organizational subsystems provides some insights into how individuals interact with systems and organizations. This study evaluates how organizational subsystems contribute to strategic leader professional development.

Another model that is pertinent to this study is the Leader Development Model that illustrates the roles of institutional education, operational experience, and self-study in leader development and performance. Institutional education includes formal curriculum programs that are offered both in residence and online in universities. Operational experience includes developmental assignments that prepare leaders for higher levels of responsibility. Self study programs include specialized material that individuals pursue to develop specialized skills. This model is explained in greater depth in the next chapter.

Distance education creates new ways to build professional networks and promote quality interactions among faculty and students through a variety of online educational tools and feedback systems. Diverse learning experiences such as simulations, video displays, and interactive tools contribute to strategic leader cognitive development. Distance education allows larger numbers of leaders to take part in online collaboration for problem solving and networking because the classroom space is not constrained. Some strategic leaders have a greater propensity to dialogue with classmates through electronic media than face-to-face traditional classroom settings because there are fewer distractions and it is more suited to their personalities.

Distance education systems help to expand leader dialogue because of online communication networks between students who are from different ethnic or gender backgrounds (Moore and Anderson 2003). Online distance education enhances the ability of strategic leaders to span organizational boundaries because of diverse networks and participants. These networks replicate many aspects of public administration in requiring leaders to use multidisciplinary themes and approaches to organizational design, management, and policy. Student networks span a large number of federal and international organizations as Army War College Distance Education students are located all over the world.

Strategic leaders are often limited in the amount of time they can devote to educational opportunities because of professional and personal demands. Distance education systems generally allow strategic leaders the opportunity to complete course material when their schedules allow. A flexible approach to education and

professional development promotes learning and collaboration because participants can focus on material that suits their needs and interests. This type of education system supports adult learning models that suggest senior leaders learn more when they apply new knowledge to past experience.

Further analysis and discussion of the role of distance education programs in strategic leader cognitive development is needed to evaluate trends and patterns in the program materials and processes. Recent research studies indicate that there are no significant differences in the learning effectiveness between traditional and distance education systems however; distance education programs are not as widely accepted as traditional education programs (Gunawardena, Wilson et al. 2003; Williams 2003). Some researchers found that the online environment that promotes dialogue and collaboration is important to student learning and motivation (Berge and Schrum 1998). Future research and studies that measure leader cognitive development will help in determining the aspects of education that are effective in leader cognitive development. Distance education allows public administrators a variety of professional development experiences that are accommodating of strategic leader and organizational needs.

Public institutions offer a number of professional development systems such as seminars, certificate, and degree granting programs. Professional development programs are important to preparing leaders for higher levels of responsibility and result in leader commitment to institutions (Yukl 1998; Piotrowski and Rosenbloom 2002). Strategic leaders are more visible and require decisions that are abstract because of changing and conflicting information. Despite the fact that strategic

leaders have less personal control over events, they are fully accountable for results (Shelton 2001). Distance education programs provide senior leaders flexibility and accessibility to higher education programs that can be tailored to their strategic leader duties and responsibilities (Bass 1998; Argyris 2004).

One of the greatest challenges for public strategic leaders is making time for professional development despite increasing workloads and a constantly changing environment. Distance education is a way for busy professionals to access educational systems with minimal disruption to their professional and personal needs and requirements. The following describes how the Army as a public agency manages and supports the strategic leader professional development program through distance education.

Cognitive Development of Military Leaders through Distance Education

Increasing numbers of strategic leaders are using distance education for cognitive development because these systems offer collaborative and informational networks in the work place. The quality of distance education and growth in these programs is also increasing exponentially because of greater visibility, accessibility and improved quality of program materials. This study focuses on the Army War College (AWC) distance education program of instruction because of its orientation toward cognitive development of strategic military leaders. The AWC distance education program is accredited by the Commission on Higher Education of the Middle States Association of Colleges and Schools and is similar to other public and private educational programs. Students that successfully complete the program are

awarded a Masters of Strategic Studies degree. Because of the similarity of the Army War College curriculum to other graduate school programs, this study may have application for other public and private organizations that pursue strategic leader professional development.

The Department of Defense and other public agencies such as the Office of Personnel Management are increasingly using distance education because it is accessible and cost effective. Interestingly, the Department of Defense is using distance education programs more extensively at the lower levels of leadership. Some of this practice can be attributed to the fact there are many more leaders at the lower levels of organizations than the strategic level. Developing leader cognitive capacity to prepare and educate future strategic leaders in the development and employment of land power in joint, multinational, and interagency environments is the core Army War College mission (Department of the Army 2004). Leader development in the Army is often associated with institutional training and education, operational experiences and self-development such as evaluating conceptual capacity and growth potential (Jacobs 1998). The Army War College fulfills the need to professionally develop strategic leaders through either a one year resident or two year non resident instruction. Non resident instruction at the Army War College is known as distance education. The AWC Distance Education Program parallels resident instruction in the way it shares learning objectives, many readings, and writing requirements. The main difference in the programs is that the majority of the distance education course work takes place through online readings, activities, and discussion venues instead of the face-to-face resident program seminars.

Army War College resident courses utilize several online instruments to assess and provide feedback on leadership attributes. Instruments include: a Personality Profile; Biodata Leadership; Team Roles, Handling Conflict and the Strategic Leadership Development Inventory and the Modified Career Path Appreciation (MCPA). Army War College distance education students do not currently have access to leadership assessment tools such as the MCPA to evaluate their cognitive capacity. Many major institutions outside the Army are using learning centers and online assessment instruments to evaluate employee performance and to provide insights for individual improvement and development. Public organizations such as the Office of Personnel Management and private firms such as Arthur Anderson and General Electric assess managers and leaders as a means for professional development and promotion (Collins and Porras 1994). The Army personnel command is also considering utilizing other types of assessment instruments in addition to the officer evaluation reporting system.

In the mid 1980s, the Army Research Institute asked experienced researchers to evaluate senior leader development (Jacobs and Jaques 1990; Markessini 1993). Gillian Stamp developed a procedure called the Modified Career Path Appreciation (MCPA) survey instrument to evaluate and predict rate of growth of individual capability to handle increasing leadership responsibility. The MCPA was also used to test a theory of organization structure and adult development based on Jaques' Stratified Systems Theory (SST). Predictions of potential were made for approximately 200 men and women of European and African origins working in several multinational organizations (Stamp 1988). Follow-up studies conducted over

a period ranging from 4 to 13 years evaluated the level the individual performed and were correlated to the level of predicted potential for performance.

In the early 1990s, the Army War College initiated a program for resident program students to use the MCPA and a variety of instruments to evaluate cognitive skills, personality traits, and leadership traits to provide feedback for professional development. Students were administered the MCPA at the beginning and end of the Army War College resident program. Preliminary analysis of the MCPA survey instrument data indicated a relationship between the Army War College educational process and growth of conceptual and cognitive skills (Stamp 1988; Jacobs 1998; Bullis 2003). Researchers found that the Army War College resident program had a significant impact on student strategic leader cognitive capacity such as intelligence, analytical reasoning, creativity, and integrative complexity skills (Zaccaro 2001; Bullis 2003).

Many strategic leaders use feedback and assessments like the MCPA survey instrument to evaluate their individual transformation from organizational to strategic level leadership. Measuring leader cognitive growth supports similar studies in evaluating the effectiveness of distance education in professional development of leaders (Beer 1980; Schwartzman 2003). The intent of this research design is to evaluate whether completion of the Army War College curriculum through distance education increases cognitive capacity and builds executive leadership skills (Yukl 1998; Moore and Anderson 2003; Watkins and Kaufman 2003). In this study, the MCPA survey instrument and other data sources are used to measure the change of distance education students' cognitive capacity to deal with complexity and long term

planning requirements. This is the first study completed that measures and analyzes the development of strategic leader cognitive development through distance education at the Army War College.

Purpose and Overview of Study

The purpose of this study is to determine if completion of the first year of the Army War College distance education program results in significant leader cognitive development for officers enrolled in the distance education program. The Army War College serves as one example of the few public institutions that utilize accredited distance education programs for strategic leader development. This study uses a mixed methods approach of quantitative and qualitative data to determine how distance education supports the development of strategic leadership skills.

This study incorporates a mixed methods approach that utilizes quantitative and qualitative measures to gain a comprehensive assessment of factors that contribute to strategic leader cognitive development through distance education. Quantitative data is collected in this study by using a valid and reliable measure, the Modified Career Path Appreciation (MCPA) survey instrument developed by Jaques and Stamp to evaluate the impact of distance education in strategic leader cognitive development. The MCPA survey measures individual capacity to deal with complexity in relation to the ability to perform skills required at various organizational levels. Jaques and others posit that strategic leaders need cognitive skills to contend with increasing complexity and long term planning. Stamp developed procedures to predict the rate of individual cognitive growth in handling

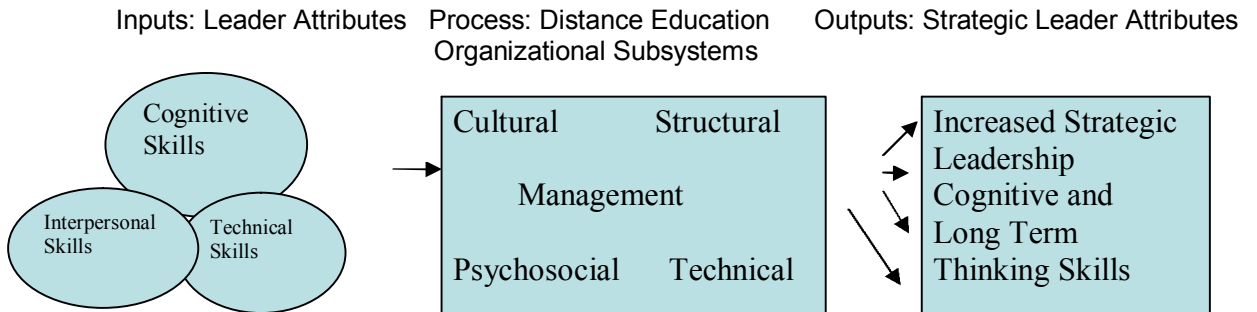
increasing complexity and long term planning which are considered strategic leadership roles and responsibilities. She used these procedures to test Jaques' theory about the importance of organizational structure and cognitive development to the success of strategic leaders.

This study uses qualitative data such as respondent interviews and focus groups to address if and how distance education programs are effective in developing strategic leader cognitive and long term planning skills. Qualitative data also helps to explain quantitative data and the way leaders use distance education programs for professional development. The qualitative data in this study was examined using the organizational subsystem model to determine if culture, psychosocial, structural, technical, and management subsystems contribute to strategic leader development. This mixed methods approach provides a rich body of data. The data and findings contribute to the body of leadership literature about the role of distance education in strategic leader cognitive development (Rahm and Reed 1997; Cranton and King 2003; Seth 2003).

Figure 1.1 depicts a model of strategic leader cognitive development through distance education and illustrates the network of organizational subsystems that contribute to this process. The organizational subsystems that are analyzed in this study include cultural, psychosocial, structural, technical, and management networks. Open systems are defined as a system of independent activities that draw energy from the environment. The inputs, processes, and outputs in this open system illustrate the interactions of the organizational subsystems and the environment (Katz and Kahn 1978). This study focuses on the development of leader cognitive skills but also has

some implications for interpersonal and technical leader attributes since leaders contend with multiple organizational subsystems.

Figure 1.1 A Model of Strategic Leader Cognitive Development



The inputs of the open system in this study are represented by strategic leader attributes of cognitive, interpersonal, and technical skills and this study is limited to evaluating cognitive skills. Leaders that take part in the distance education programs are exposed to cultural, psychosocial, structural, technical and managerial subsystems that are discussed in Chapter 4. The desired result or outputs of the distance education open systems model in leader cognitive development are improved cognitive and long term planning strategic leader skills.

The research question for this study is: Do U.S. Army War College students increase their cognitive skills by completing the First Year of the Army War College Distance Education Program? Answering this question will serve to advance public administration theory in several ways. For example, this study is one of the first to address the contribution of distance education to strategic leader cognitive development. This study is noteworthy because strategic leader cognitive

development through distance education is a relatively new field of study. Evaluating the success of strategic leader cognitive development through distance education is an initial step in creating new strategies for future professional development.

The Organizational Setting

The Department of Defense has four military service schools for senior executives. The intent of these programs is to provide a broad overview of strategic leadership responsibilities for policy making, management, and organizational design. The following mission statement of the college explains the institutional setting for this study:

To prepare selected military, civilian, and international leaders for the responsibilities of strategic leadership; educate current and future leaders on the development and employment of military power in a joint, multinational and interagency environment; conduct research and publish on national security and military strategy; and engage in activities that support Department of Defense strategic communications (Department of the Army 2004).

The organizational setting for this study is an accredited post graduate educational program for military strategic leaders that takes place at Carlisle Barracks, Pennsylvania. The academic organization is designed and resourced for post-graduate education and research. The students of the distance education program have diverse work experience in different levels and types of government organizations. Each year, over 450 distance education students are selected to participate in the Army War College Distance Education Program. Senior military officers are selected for the program based on their performance records.

The Army War College is an ideal site to conduct this study since it has a formal history of over a hundred and fifty years of strategic leadership education and development. Research subjects in this study are comprised of military officers from various professional backgrounds in addition to war fighting such as administration, legal, medical, information management, engineering, education, and business. The population of the research subjects associated with military universities is predominately male, Caucasian ethnic background, and a graduate level of education.

This study is limited to military officers because of the small number of civilian students that are part of the Army War College distance education student population. Many of the respondents have served in a number of military and civilian career fields that facilitate interagency and in some cases international partnership. Many of the study respondents have little experience with distance education or computer learning and this program is their first extensive experience with online course material.

The Army War College Distance Education Program is part of an Army professional development program for senior leaders to prepare for future duties and responsibilities at the strategic level. Some of these duties include serving as Commander of coalition forces and regional commands that require effective civil-military coordination. Strategic leaders in the military serve with many different types of organizations all over the world and such as joint military staffs, interagency and international organizations like the Department of State, NATO, and the United Nations.

Students complete five courses during the first year of the USAWC distance education program including: Strategic Leadership; International Relations and the Use of Power; National Security Policy and Strategy; War and Military Strategy; and Department of Defense Organization, Planning, and Strategy. Students are typically required to complete two essays in each course and participate in one forum (an online threaded discussion). All course requirements are evaluated and students are provided with formal feedback by faculty members. The Army War College has integrated current and emerging battle simulations and technologies into the curriculum with the intent of creating realistic experiential learning environments to enhance the development of critical thinking skills .

Strategic level leaders in the military have important roles in contending with complex civil-military relationship; they require cognitive, interpersonal, and technical competencies. Military doctrine defines strategic leadership as “the skillful formulation, coordination, and application of ends (objectives), ways (courses of action), and means (supporting resources) to promote and defend national interests” . The Army War College distance education program develops strategic level competencies by providing access to a wide variety of subject matter such as strategic leadership, international relations, national security policy, and military strategy. Distance education informational networks provide strategic leaders’ tools for collaborative decision making in their Army War College studies and in future endeavors such as planning, developing, and overseeing public policies of national and international interest.

Public Administration scholars like Robert Behm, Frederick Mosher, and others have written about the importance of professional development programs for senior military leaders that work with civilian organizations to formulate and overseeing public policy. Samuel Huntington posits in his work on civil-military relations that professional development should consist of a broad, liberal, and cultural background to impart specialized skills and knowledge of a profession (Huntington 1981). Morris Janowitz in his work on professional soldiers argues that the military as a profession should be educated to carry out the values of the society it represents. The Army Distance Education Program supports the ideals of these scholars by providing students a broad array of strategic level literature with both military and civilian frameworks and case studies. This methodology helps develop cognitive skills that use a balanced and critical approach to national security studies.

Distance education professional development programs provide military members opportunities to gain insights to both military and civilian organizational values and culture through readings and online interactions. Access to a wide range of information through distance education is especially important for military members who can be somewhat isolated from civilian organizations. The distance education program is a means to integrate military and civilian academic experiences and approaches to strategic issues. In this study, respondents were able to immediately apply what they learn in a distance education program to their professional and personal experience. The application of the curriculum material to the respondents' experience contributed to their cognitive development.

Conclusion

This chapter provided an overview of the study purpose, background, and methodology. The study of strategic leadership through distance education is of growing importance to the field of public administration because of the increasing need for leader professional development. Distance education is accessible and provides some unique ways for strategic leaders to develop cognitive, interpersonal, and technical competencies. Chapter 2 is a review of literature that focuses on the research question of how distance education contributes to the cognitive development of strategic leaders. The literature review links theories of strategic leader development with theories of distance education as applied to professional development for public administration. Professional development through distance education is creating new networks and systems for policy making, management, and organizational design.

Chapter 3 presents the research methods and explains how mixed methods were used in the collection of both quantitative and qualitative data for analysis and reporting. This chapter also describes the participants, materials, and research design procedures used in this study. Chapter 4 is an overview of the data analysis and findings that were a result of the mixed methods approach to the study that incorporates both quantitative and qualitative analysis. Collection of multiple forms of data and analysis allow for triangulation of findings that support and add to previous studies. This chapter also denotes the limiters and delimiters of this study that need to be considered for future studies. Chapter 5 presents conclusions, contributions of the study to theory and practices as well as recommendations for

future research. Appendices of the study include the bibliography, research instruments, data and supporting documentation.

In summary, this study is designed to evaluate how distance education contributes to strategic leader cognitive development and to help fill gaps in the strategic leadership literature. Developing strategic leader competencies through distance education is a dynamic field because of the evolving role of public administrators in a technically sophisticated and networked global environment. This assessment supports the continued and increased use of distance education as a practical and effective means of strategic leader development.

Chapter 2 Literature Review

This review of leadership literature is an overview of conceptual and theoretical frameworks that link strategic leader cognitive development with distance education and public administration. Strategic leadership describes the roles and attributes that are required for an organization to gain and maintain competitive advantage and to make sense of ambiguity (Jaques and Clement 1991; Zaccaro 2001; Jacobs 2002). Distance education is playing an increasingly important role in strategic leader cognitive development through course content, informational networks, and communications systems that increase capacity for both individual and organizational learning. Strategic leader professional development helps to ensure leaders are kept informed of changing public administration functions such as anticipating policy change, evolving organizational structures, and management systems (Brewer, Selden et al. 2000).

This literature review is organized to examine both individual and organizational theories and frameworks about strategic leadership characteristics and cognitive development through distance education. The first part of the literature review examines individual aspects of cognitive development in leadership theory such as conceptual, behavioral, and contingency models. The second part of the literature review examines organizational aspects of cognitive development such as open systems, leader development, and stratified systems theory. Both individual and organizational aspects of leader cognitive development are important to evaluating the role of distance education in the professional development of strategic leaders.

Strategic leaders are generally proactive and work indirectly with other leaders or organizations to sort through problems with a clearly articulated vision. Effective leaders are able to create a culture that supports achievement of organizational goals (Jacobs 2002). Strategic leaders often work in multinational environments and have the responsibility for managing the relationship between the national resources and policies (Markessini 1993; Jacobs 2002). They create future capabilities by managing joint and combined relationships or systems in order to meet contingencies such as systems thinking, personal mastery, mental models, shared vision and team learning (Senge and Carstedt 2003).

Strategic leaders use systems thinking for examining similarities in different issues to generalize learning from systems. Personal mastery of cognitive skills is a result of growth of values, beliefs, and principles that systematically guide behavior and decision making (Mintzberg 1994; Jacobs 2002). Methods for extending cognitive skills through distance education are important for building effective teams and managing complexity. For example, distance education programs support policy analysis by providing access to multiple perspectives and source documents that give strategic leaders a broad spectrum of ideas and approaches for decision making, reform, and governance. Strategic leaders envision future organizational roles and capabilities that are networked through computer systems. Networked systems are effective ways to build consensus and commitment to learning and to improve programs through forum discussion (Bryson 1995).

An organizational systems approach to problem solving through distance education is important to evaluating the properties that make systems similar to one

another and make it possible to generalize learning. Organizational subsystems such as values or culture, psychosocial, technical, structural, and management subsystems provide insights to the way that leaders develop cognitive skills and competencies. These subsystems provide strategic leaders a multidisciplinary way to evaluate distance education as a means for cognitive development.

Strategic leaders need to balance structured and less structured approaches to developing expertise in organizational, management, and policy by using a large variety of information sources and networks (Simonson and Buck 2003). Extending discourse, collaboration, and participation through distance education systems promotes leader competencies with a variety of informational sources. Diverse informational sources provide strategic leaders a broad array of knowledge and critical thinking of issues that is necessary for strategic level decision making (Heineman, Bluhm et al. 1995; Fischer 2003). The organizational subsystems model incorporates a number of ways to evaluate factors about strategic leader cognitive development.

The cultural subsystem includes physical and visible behavior patterns, language, rites and rituals (Ziegenfuss 2002). Psychosocial subsystems evaluate personality, attitudes, perceptions, motivation, communication and learning. Strategic leaders increase their knowledge of technical subsystems through distance education in using evolving hardware and software that links informational and personal networks (Jaques and Clement 1991; Zaccaro 2001; Jacobs 2002). Structural subsystems are the way strategic leaders understand and develop organizational authority and power such as delegating and reporting systems.

Managerial subsystems include design, planning, stewardship, communication, evaluation, coaching, controlling and evaluating organizations. These subsystems give strategic leaders new perspectives for professional development that supports policy making and resource management (Lape and Hart 1997; Hanna 2003).

The organizational subsystems model provides a framework to examine and evaluate the contribution of elements from subsystems to distance education systems. Cognitive development allows more complex ways of thinking and feeling, a deeper sense of self and an increasing perception of the world (London and Maurer 2004). Several public leadership theories link strategic leader cognitive development and distance education. Theories, models and frameworks help to explain leadership theory, strategic leader characteristics and institutional responsibility. Capacity to think creatively and systematically about complex issues contributes to cognitive development (Jacobs 2002).

Overview of Strategic Leadership Theory

There are many ways practitioners and theorists define leadership as a multidisciplinary field of study . Strategic leadership is the process of creating and translating an organizational vision into a strategy or reality (Hellriegel, Slocum et al. 1995; Goleman, McKee et al. 2002). Leaders draw on various sources of power and skills such as visioning, empowerment, communication, and self understanding to gain authority and enable others to achieve goals. Various models such as behavioral, contingency, attribution, and transformational models examine leader traits, behavior and contingencies to help explain the multifaceted aspects of strategic leadership

attributes such as cognitive, social, and problem solving skills (Zaccaro 1996; Jacobs 2002).

Behavioral models help to explain leader action such as consideration and initiating structure that foster organizational performance and goal attainment (Zaccaro 1996; Ziegenfuss 2002). Contingency models emphasize the importance of situations and contingencies such as the group environment or acceptance of the leader, task structure, and position of power. Attribution models suggest that a leader's judgment is influenced by their insights and frame of reference based on schooling, experience and self-study. Transformational models evaluate how leaders utilize personal sources of power such as idealization and intellect to focus on the individual and heighten subordinate motivation.

The evolution of leadership theory is associated with the use of technological capability such as networks and online tools to develop cognitive capacity, fit, and performance (Frederickson 1971; Passmore 1988). Developments in the digital environment are dramatically changing the dynamics of decision making and communications because online networks and simulations can model leadership decision making outcomes (Paparone 2004). Stogdill and Bass analyzed over 250 studies of leadership traits. Their synthesis of the studies indicates that strategic leaders have a number of attributes and competencies (Stogdill and Bass 1974; Macgregor 2003). Strategic leaders tend to be more intelligent, dependable, insightful, persistent, self confident, have capacity for absorbing stress, willingness to tolerate frustration, and have the ability to influence the behavior and organize groups (Stogdill and Bass 1974). Researchers at Ohio State University found that strategic

leadership behaviors such as consideration of others and initiation of structure contributes to the achievement of group goals (Likert 1961; Katz and Kahn 1978; Hellriegel, Slocum et al. 1995; Bass 1998).

Contemporary leadership theories examine many individual traits that are associated with a continuum of strategic leadership styles such as transformational, transactional, leading or managing by exception, and laissez-faire leadership. Transformational leadership is attributed to the influence of leader intellect, influence, individualized and inspirational attributes (Burns 1978; Bass 1998; Bass, Jung et al. 2003). Transactional leadership is associated with hierarchy and assumes managerial control with contingent reward for carrying out goals. An example of leading or managing by exception is when leaders monitor mistakes and direct corrective action. Laissez-faire leadership is a state where leaders are absent from decision processes and responsibility is ignored (Bass and Avolio 2003). Strategic leader cognitive development is associated with transformational leadership rather than transactional, leading by exception, or laissez-faire leadership.

Leadership styles vary according to the leader's personal attributes like their cognitive capacity, interpersonal, and technical skills. Leadership traits are also impacted by environmental and organizational subsystems such as culture, psychosocial, structural, technical, and management. Many public organizations emphasize the importance of followers accepting strategic leaders based on their performance rather than drawing power from positions (Army 1999; Shinseki and Hesselbein 2004). Most public organizations are service-oriented where power is attributed to results, favorable outcomes, and performance in managing critical

resources. Bureaucracy is a form of hierarchical power and computer networks are causing organizations to operate in a less hierarchical manner. The following table integrates various aspects of leadership traits and competencies at the strategic, operational, and production levels in organizational structure. This study focuses on the traits and competencies of the strategic level leader because strategic leaders influence operational and production level leaders.

Table 2.1 Doctrinal Leadership Framework of Competencies by Leadership Levels (Army War College 2005).

	Interpersonal	Conceptual	Technical	Influencing
Strategic	Communicating, Negotiating, Consensus Building	Envision Deal with Uncertainty Develop Frames of Reference	Leverage Technology Translate Political Goals	Strategic Planning Evaluate Assess
Organizational/ Operational	Understanding, Supervising, Communicating	Establish Intent Filter Information Understand Systems	Maintain Critical Skills Resource Management Predict 2 nd /3 rd Order Effects	Plan & Preparation Execute Assess
Production/ Direct	Counseling & Communicating	Reasoning, Creative, & Reflective Thinking	Know Personnel and Equipment	Plan & Check Provide Feedback

The overlapping themes in leadership theories, models, and frameworks include assessment and development of strategic skills and behaviors for creating and sustaining organizational vision, performance, and development (Quinn 1988; Markessini 1993). Strategic leadership focuses on the highest levels of organizations that typically have responsibility for comprehensive programs with extensive resources for policy making and management. Strategic leaders also interact and have responsibility for developing subordinate leaders at the operational and production levels. The highest level of leadership in most organizations is strategic level leadership. Strategic leadership is multifaceted and typically includes the roles and responsibilities of establishing organizational culture or values, policy development, resource allocation, and decision making.

Table 2.2 compares several major leadership models by attributes, variables and limitations of each model. Specific roles and expectations of leaders are based on their personal development and experience. This table helps to explain the dynamics of leadership theories and practice that highlights traits, behavior, attribution, transformation, and contingency. The field of leadership is multidisciplinary in nature and has broad implications to future individual and organizational development. Few research studies evaluate the development of leadership cognitive skills through distance education. The literature on leadership explains that cognitive skills are traits are vital to each of the leadership models because knowledge and conceptual skills are engaged through traits, behavior, attribution, transformation, and contingencies.

Table 2.2 Comparison of Leadership Models

Traits Model	Behavior Model	Attribution Model	Transformation Model	Contingency Model
Intellect, Social Skills Motivation Experience	Consideration (Trust, respect) Initiating structure (roles)	Judgment based on leader knowledge of employee	Idealized, Intellectual, Individualized, and Inspirational Skills	Characteristics of leader, role, position of power, and structure of organization
		Limitation of Models		
Does not fully consider environmental influences & interpersonal interactions	Lacks consideration of environmental factors	Leader may have limited knowledge based on traits and/or information sources	Span of control and influence to sustain heightened interest & motivation	Fails to consider changes in leader characteristics, position, organizational structure and environment

Characteristics of Strategic Leader Cognitive Development

Strategic leadership can be described as a dynamic process that is oriented toward complex problems involving inter-organizational solutions or a system within systems (Selznick 1984; Papparone 2004). Strategic leaders contend with broad and complex issue networks that are constantly changing, such as the ability to integrate multiple planning efforts. Strategic leadership orientation affects interpretations and the way issues are evaluated and acted upon. For example, trust and accountability are some of the prevailing organizational values for dealing with “wicked” problems. Wicked problems are problems that have many competing public interests, such as the need for organizations to account for public spending. Strategic leadership is a

process involving lifelong learning and understanding multiple vantage points as strategic leaders evaluate how both internal and external organizations function in order to anticipate future requirements (Heifetz 2004; Reed, Bullis et al. 2004).

Development of cognitive intelligence in strategic leaders is important to understanding how leadership roles change in the strategic domain because organizations are constantly changing. Cognitive intelligence is regarded as the sum total of all mental abilities or the repertoire of a person's knowledge and skills at a given time such as intellectual, critical and creative thinking (Jensen 1987). Strategic leaders rely on their intellectual capacity to provide organizational vision and guidance. Intellectual ability is thought to provide for creative and critical thinking and an array of mental abilities to put ideas together or separate them for analysis (Behn 1985; Jaques 1986; Heineman, Bluhm et al. 1995). Another important attribute of strategic leadership is critical thinking because leaders need to consider secondary and tertiary effects of the decisions.

Critical thinking is an attempt to clarify meaning through the evaluation of evidence (Martinelli 1987). Creative thinking is important to developing organizational visions and establishing unique ways to solve complex problems. Distance education facilitates intellectual, critical, and creative thinking by expanding strategic leader access to larger networks of information and people (Pacey and Keough 2001). Public organizations are increasingly using computer networks for critical and creative thinking, problem solving and information sharing. For example, many public organizations seek collaborative solutions to issues by promoting public review and comment through on line bulletin boards.

Strategic level leadership attributes enable organizations to learn and discover while navigating through complexity and chaos. Complexity is according to Elliott Jaques “a function of the number of variables, the rate at which they are changing, and the extent to which they are interwoven” (Jaques and Clement 1991). Capacity for strategic leadership increases with maturation of cognitive capacity or the ability to develop critical and creative thinking skills (Markessini 1993). The art of facilitating strategic leadership skills involves evaluating the rate of growth of the leader’s cognitive skills that can be used to predict the capacity to handle increasing responsibility or managerial potential (Stamp 1988). Utilizing leadership assessment systems to measure the impact of distance education on strategic leadership cognitive development may help to predict the potential for future strategic leader competencies (Stamp 1988; Jacobs and Jaques 1990; Bass 1998).

Strategic leaders recognize competing values and understand personal commitments that are tied to organizations in determining future visions and missions (Burns 1978; Quinn 1988). In determining a vision, public leaders learn how to address conflicts in the values people stand for and the reality that they face (Heifetz 2004). Strategic leaders use their cognitive abilities to assess and find ways to achieve the organizational vision with limited resources. They anticipate change and seek out innovation on a global scale by using distance education to span new boundaries and establish networks to expand their conceptual abilities (Jacobs 2002; Kilfoil 2003).

Measuring and evaluating the impact of distance education in developing strategic leader cognitive capacity is important because cognitive capacity is essential

in handling the complexity found at high organizational levels. Strategic leaders are thought to need a high level of concept abstraction, capacity to parallel process or cross-link mental models, and the capacity to do integrative thinking (Jacobs and Jaques 1990). Knowledge is thought to be deep, abstract, and contextualized so experts can make decisions quickly by recognizing patterns .

A comprehensive review of leader cognition results in over 2,000 references that contain approximately 20 theories and models (Markessini 1993; Zaccaro 2001). Theories concerning leader cognition are diverse and according to Markessini there are at least five distinct theoretical groups: comprehensive composite models; network models; hierarchical taxonomies; typologies of cognition; and cognitive task-analysis models (Markessini 1993). This study incorporates aspects of hierarchical taxonomies with Jaques' theory and typologies of cognition through the use of the Modified Career Path Appreciation (MCPA) survey instrument.

The scientific community does not have a widely accepted, comprehensive theory of leadership learning principles (Markessini 1993). There are disagreements about the role of leader intelligence, critical and creative thinking, evaluation and mapping ability. Cognition involves the combination of intelligence, thinking skills, evaluation and mapping elements into meaningful patterns. Leaders are able to create, manipulate, and interpret those combinations into an operational map (Jaques 1986). With greater cognitive power, the leader's model of reality is more extensive and complex (Markessini 1993). This study of cognitive skills focuses on the Army War College distance education students. However; many of the principles from this study can be used to evaluate civilian professional development organizations such as

public and private university distance education systems, fellowships, and other professional development programs. Many strategic leadership course curriculums use similar leadership theory and case studies.

Strategic leaders are expected to have multiple cognitive competencies in many facets such as business, military, technical, and political arenas. Leaders at the strategic level use their knowledge to create change to establish and accomplish the institutional vision. Strategic leaders have in depth knowledge of political, economic, diplomatic, informational elements of national power and know how to adapt to change and uncertainty (Army 1999; Bullis 2003). Leaders at the highest level in organizations define organizational vision and purpose (Barnard 1968; Zaccaro 1996).

Strategic leader responsibilities in all professions include effective communication skills and detailed knowledge of multidisciplinary subjects to influence decision making. In relating an organization to the external environment, strategic leaders scan boundaries to incorporate external resources. Leaders at the strategic level have access to a wide audience and use a variety of case studies with online networks (Passmore 1988; Chisholm 1996; Laubacher and Malone 2003). Jaques' theories center on the ability of strategic leaders to contend with increasing levels of complexity and to develop plans or visions that span a ten year period of time (Jaques and Clement 1991).

Study of strategic leadership for senior military officers is important in understanding their role in contributing to national security (Shambach 2004). Some of the attributes associated with strategic level leadership are: that strategic leadership

is indirect and involves long term planning; that it requires boundary-spanning and environmental engagement; and that strategic leadership is built on network development and consensus building (Markessini 1993; Ziegenfuss 1996; Freedman 2003; Kilfoil 2003). These attributes of strategic leadership has been found to be linked with the capability for long term planning and cognitive complexity. Data from research studies suggests that executives have the capability to plan and envision with many different types of organizations over long periods of 10 to 15 years (Jacobs and Jaques 1990; Donahue 2004). The majority of strategic level military officers plan in an 8-12 year time frame which is normal considering the tremendous change and complexity of government organizations and systems (Stamp 1988; Jaques and Stamp 1990; Markessini 1993).

Strategic leaders constantly span boundaries to evaluate change and determine the effects of environmental engagement in organizational members and structure. Public administrators engage and interact with external agencies such as corporations and international agencies (Jacobs 1998; Macgregor 2003). More than 88% of all strategic leaders rate network development as important to their roles because networks provide greater sources of information (Pettigrew and Fenton 2000; Senge and Carstedy 2003). Consensus building is not rated as highly as network development but has a significant impact on the way strategic leaders think and act. Many senior leaders are adept at fostering social and political relationships that are conducive to consensus building. Today and in the future, interpersonal relationship building is being accomplished online and through collaborative processes like distance education programs (Zaccaro 1996).

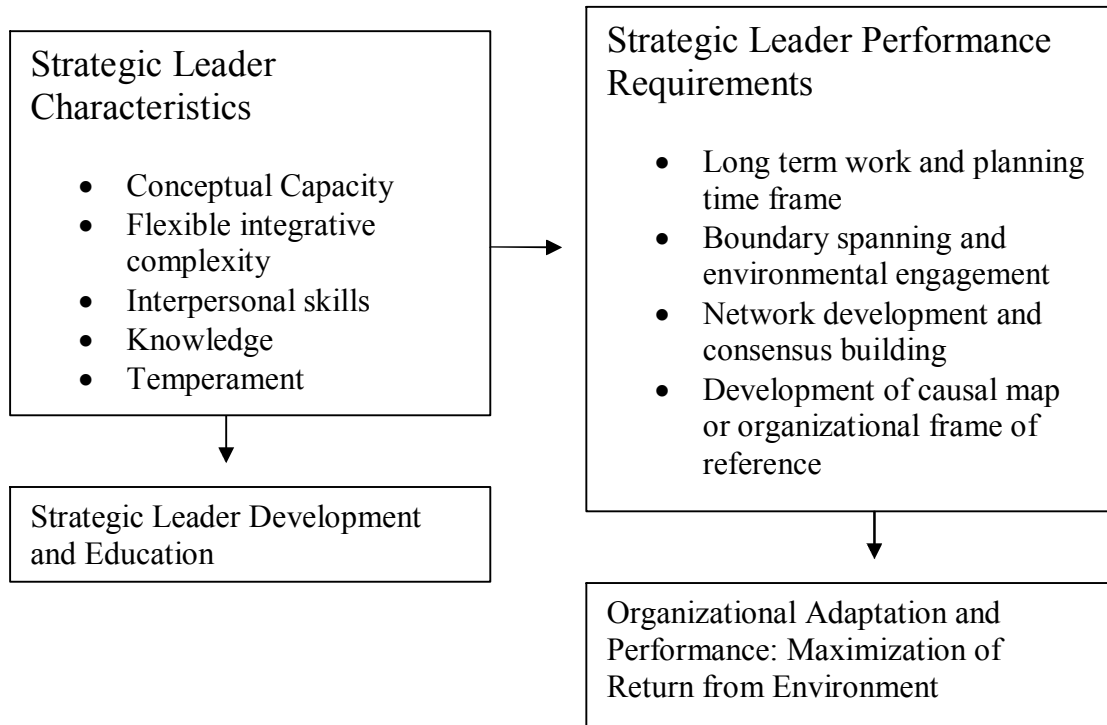
Frames of reference are the complex mental models that are required to understand interdependencies and linkages in organizational causal maps. Strategic leaders use frames of reference to ensure that the vision and direction of the organization fits with environmental change (Katz and Kahn 1978; Hamel and Prahalad 1993). The Army Research Institute's extensive leadership studies indicate that strategic level leaders need the ability to contend with longer time frames, to interact with external constituents, to develop networks and consensus, and to develop complex cognitive maps (Schwartzman 2003; Williams 2003; Reed, Bullis et al. 2004).

Strategic leader characteristics are a determinant of the type of educational systems that are best suited for their professional development. For example, leaders with high conceptual capacity generally desire an autonomous educational environment like distance education that allows for self directed research (Boyatzis, Cowen et al. 1995; Moore and Kearsley 1996). Strategic leaders utilize computer networks that have many types of informational and educational sources to maximize organizational adaptation and performance. Leaders in the Department of Defense promote distance education as a means for preparing organizational members for environmental and organizational change. Strategic leaders have the ability to use the expansive properties of distance education systems to enhance their conceptual capacity, interpersonal skills, knowledge, and temperament to learn.

Figure 2.1 illustrates the relationship of strategic leader characteristics and performance requirements for achieving complex and long term planning. This model illustrates how the strategic leader characteristics are important for increasing

performance requirements, organizational adaptation, and performance. Top level leaders must be capable of dealing with and communicating abstract concepts in a way that most people can understand.

Figure 2.1. Strategic Leader Characteristics and Performance: A Research Model (Zaccaro, 1986).



Strategic leaders generally have highly developed interpersonal skills, knowledge, and temperament that contribute to achieving high standards of excellence. Long term planning time frames, boundary spanning, network development, and an organizational frame of reference provide strategic leaders the means to adapt and maximize organizational performance. The preceding model is an example of how individual leadership models are linked with organizational leadership models. Aligning strategic leader capability and skills with the right level

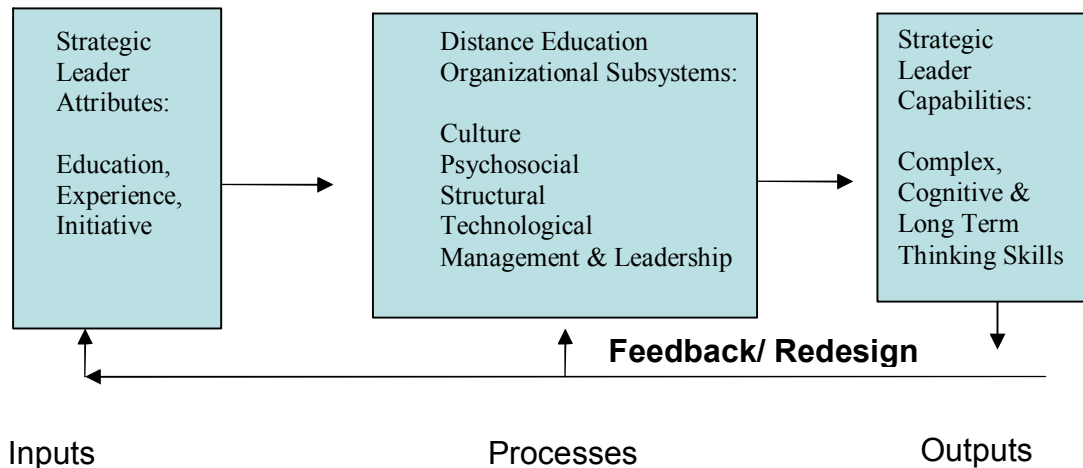
of performance is instrumental in ensuring effective performance and congruity in professional development (Mohrman and Cummings 1989; Bass 1998).

Strategic Leader Cognitive Development as an Open System

Strategic leaders employ systems thinking in organizational learning and cognitive development through holistic approaches to problems that understand interrelationships, processes, indirect effects and logic. Systems analysis provides a framework for evaluating public administration and specifically strategic leadership elements of organizational design and management. Theories about open systems evaluate how the environment and technology impacts organizations. Open systems also help to systematically evaluate values, technology, structure, psychosocial and management subsystems (Bertalanffy 1968; Katz and Kahn 1978; Chisholm and Elden 1993).

Strategic leader cognitive development systems like distance education programs are organizational systems to evaluate strategic leader cognitive development. These systems are comprised of inputs, processes, outputs, and feedback loops. Inputs are the skills or systems such as the initial state of the leader. Processes are the means that are employed in achieving an outcome or performance. Outputs are the outcomes or the result of distance education in developing strategic leaders. Feedback loops operate within a context or environment that creates updates to system operating environments (Jacobs 2002). All systems tend toward equilibrium that is less energy demanding and evolves to higher levels of performance.

Figure 2.2. Open Systems of Strategic Leader Cognitive Development through Distance Education



Inputs that are essential for cognitive development of strategic leaders through distance education include attributes such as quality education and operational experience. Processes are a means for organizational analysis to evaluate organizational subsystem variables such as distance education culture, structure, and management on strategic leader development. Outputs are the results of the process in shaping strategic leaders such as the networks that distance education utilize to expand global learning. Feedback systems provide a means to use developments from the distance education process such as increased cognitive skills to improve leadership attributes.

Most organizations and individuals no longer function as what von Bertalanffy describes as closed systems or organizations that have no interaction with the environment and technology (Bertalanffy 1968). Global connections between people and organizations are increasingly an open system that is also a primary means

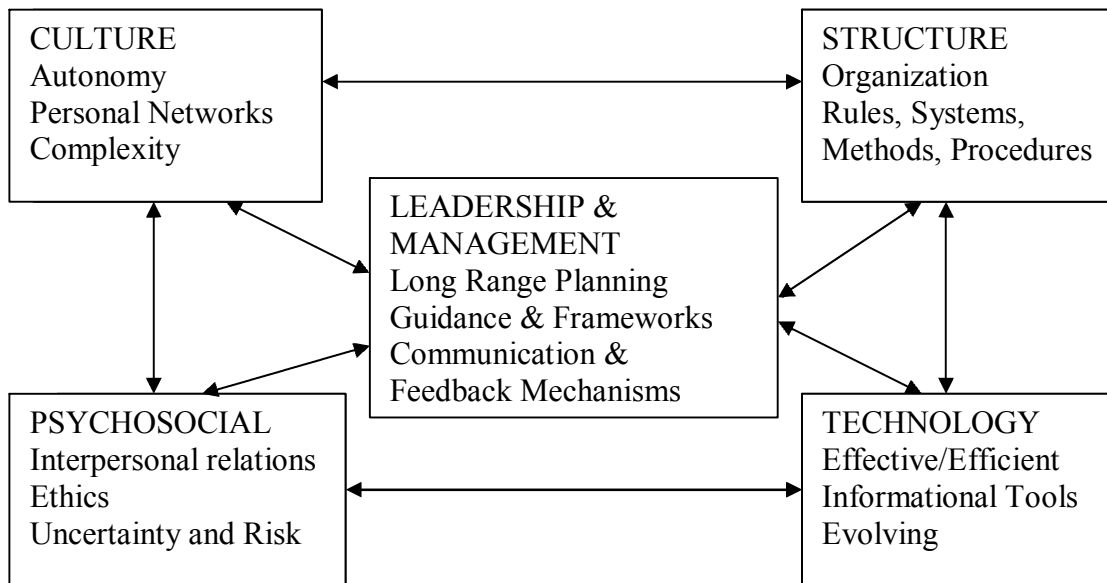
of communication and learning. Leaders that interact with a variety of sources of information and communication are better able to stay informed of change and innovation. Strategic leaders are like open systems in the way that they constantly scan boundaries and incorporate use of developing organizational systems such as distance education programs to improve performance management. Feedback is an important aspect of the open system processes, adjustments, and adaptations that strategic leaders make in adapting to the changing environment. In open systems, feedback helps to improve processes and outputs. An example of feedback in distance education is course surveys that help administrators and educators improve or redesign curriculum to meet student needs and requirements.

Distance education organizational subsystems that are part of the process in open systems for developing strategic leader cognitive skills and includes the need for: culture, psychosocial, structural, technological, and management subsystems. Each of the subsystems is considered to be internal to organizational performance and part of the integrated distance learning system. Strategic leaders consider these subsystems in balancing shifting priorities and to broaden their insights to environmental change.

Organizational subsystems as illustrated in the following diagram serve as a framework in this study for strategic leaders to consider many dimensions of distance education systems (Jacobs, 2002; Ziegenfuss 2002). The feedback and redesign process also integrates changes from the environment into the system. Open systems are dynamic and aid in helping strategic leaders to transform both individually and with their organizations.

The framework in Figure 2.2 provides a comprehensive means to evaluate subsystems in strategic leader cognitive development through distance education. This framework spans a continuum of the multidimensional factors that contribute to strategic leader cognitive development and is part of the analysis part of this study. The subsystem framework and descriptions are a means to organize and explain the quantitative and qualitative data associated with strategic leadership cognitive development theory and practice.

Figure 2.3 Organizational Subsystems that Impact Strategic Leader Cognitive Development through Distance Education (Ziegenfuss 2002).



Organizational subsystem frameworks serve as a systematic way to triangulate quantitative assessments from the survey instrument as well as the qualitative focus group and individual interviews. The MCPA survey instrument is limited in that it assesses primarily organizational structure, leadership, and management. Qualitative

results from this study address how cultural, psychosocial, structural, technology and subsystems in distance education contribute to strategic leader development. The multidimensional aspects of the organizational subsystem frameworks are important to ensuring a thorough analysis as well as identifying gaps and overlapping factors that impact strategic leader cognitive development through distance education.

The culture subsystem includes the goals and values of strategic leader development through distance education such as utilization of technology for maximum learning potential. Culture is also the type of environment for strategic learning such as higher education institutions that support cognitive development through discovery and flexible course scheduling (Cranton and King 2003; King and Lawler 2003). Organizational members look for ways to identify and reinforce their membership through cultural systems such as non attribution policies in academic institutions so members can share ideas without being taken out of context. This is especially important with distance education where the audience for idea and information exchange is not as controlled as in an institutional setting.

The psychosocial subsystem is the dynamics of individuals and group interaction such as behavior, motivation, status, roles, and relationships. Psychosocial aspects of distance education are shaped and supported in the way that faculty and administrators interact with strategic leader students to aid in self discovery. Strategic leaders generally like to work on their own and have high motivation for learning (Jacobs 2002; Shambach 2004). The role of faculty members is important in encouraging students to interact and learn from their individual and collective experience.

The structural subsystem is the degree of formalization, standardization and specialization in organizations such as establishing policy and procedure. Strategic leaders have experience with various organizational structures. They are aware of social requirements such as the value of the interaction of students and faculty to promote strategic leader learning and understanding. Distance education is a system that allows strategic leaders to learn in a less formal environment where students have greater control over scheduling and development of course requirements.

The technical subsystem refers to the knowledge to design, develop, distribute, and support professional development products and services such as the types of video or simulations used in courses. Strategic leaders need exposure to diverse and complex systems to promote learning and to mirror environmental change (Jaques and Stamp 1995; Jacobs 2002). The distance education program provides a number of different types of curriculum materials that can be downloaded such as text, videos, and interactive mediums. Increasing numbers of students are downloading text and video files that they can review while traveling or commuting. High quality technical systems are instrumental to the support and confidence of strategic leaders who expect high standards of performance.

Development of technological systems in distance education is promoting strategic leadership by creating networks for critical and creative thinking. New educational systems such as simulations and threaded discussions allow leaders to synthesize a large quantity of information. The new science of leadership is about sustaining and creating knowledge relationships among networks. These networks are where strategic leadership is dispersed and distributed to members based on their

value to the organization (Paparone 2004). Evolving ideas about strategic leadership skills and organizational structure are associated with changing environmental and technological conditions such as globalization.

The managerial subsystem integrates the organization with the environment to include distance education goal setting, design, evaluation, and control processes. Strategic leaders have well developed managerial attributes that include stewardship, communication, and evaluation of distance education systems. Strategic leaders are more likely to use feedback systems and reflective thinking to manage and assess distance education systems (Berge and Schrum 1998; Jacobs 2002). These skills are important to the way strategic leaders synthesize complex ideas.

Organizational subsystems are important to the overall design and implementation of distance education systems for strategic leaders because the subsystems provide networks to help reinforce learning. For example, the culture of academic institutions is to promote learning and administrators are concerned about the psychosocial subsystems or how students feel about the education process. In addition to these five subsystems, strategic leaders also take into consideration the external systems of an organization or the forces outside the boundaries of the organization (Ziegenfuss 2002). External systems that impact distance education and strategic leadership such as economics, politics, and globalization are instrumental to understanding the way that leaders develop their cognitive abilities. The interrelationships among the systems indicate there are trends and important information points for analysis of strategic leader cognitive development through distance education .

Roles of Strategic Leaders in Organizations

Strategic leaders need to have cognitive skills, appropriate knowledge, skills, and leadership experience of large organizations to manage complexity (Burns 1978; Jaques and Clement 1991; Drucker 2002). Organizational structures are made up of layers or strata that correlate leader roles and capability in planning over various time spans. Levels of complexity correspond with primal, rational, developmental, and metaphysical management such as childhood and adolescence; daily business discourse; the conceptual world of management; and universal order that transcends the corporate world (Jaques and Clement 1991). The highest strata or strategic leadership is concerned about setting and sustaining public and corporate vision and culture. Strategic leader development is important for effective public administration because strategic leaders guide the vision, organizational structure, and performance.

Large organizations have multiple levels of leadership that need to be integrated to ensure effectiveness and legitimacy (Fernandez 2005). Strategic leaders make choices within the context of the situations that occur and are anticipated in the future based on experience and their knowledge. Legitimacy of power is measured in the leaders' accountability to others (Vinzant and Crothers 1998). These leadership skills are especially important in the military which the public has entrusted the security of the nation. Complex situations such as the national security requires both military and civilian strategic leaders to have complex cognitive skills for planning and decision making (Jaques and Stamp 1990; Bass and Avolio 2000).

The leader professional development model depicts how leaders use a combination of institutional, operational, and self development programs. Leadership attributes such as intellect was considered to be a result of institutional training and education however; experiential assignments and self development programs are increasingly important in addressing specific leader needs. Institutional training and education includes the formal educational programs that are part of academic programs and institutions. Operational assignments and experiential learning often provides leaders practical, real world implications of leader development. Self development programs are the actions leaders take to increase specialized knowledge and competencies as a result of educational study

Table 2.3 Leader Development Model (U.S. Army, 2006)

Types of Leader Development	Institutional Training & Education	Assignments & Experiences	Self Development
Examples of Development Programs	Resident & Distance Education, Certificate Programs	Developmental Assignments	Specialized Study, Professional Reading

This study is limited to leader development in institutional education however; the model shows the linkage of distance education between the three modes of leader development. For example, distance education often serves as a linkage between institutional education, experiential assignments and self development since much of our learning and work environment is linked with computer systems. There are a number of ways that leaders use both formal and informal systems to further their

cognitive development such as formal education programs, certificate, and information briefings that are distributed through distance education. Expansion of this model could be considered in future studies to illustrate other means of strategic leader cognitive development beyond institutional education.

Distance education is in some organizations considered to be self development. However; institutional distance education provides interaction with informational and personal networks that goes far beyond self development. Strategic theorists develop strategic concepts that integrate elements of history, power, and national security. Strategic practitioners develop and execute plans that employ both military and civilian organizations to accomplish the strategic ends, means, and ways. In distance education, strategic leaders use online resources to increase their ability to handle complex and uncertain environments. Effective organizations are a result of the ability of leaders, theorists and practitioners to coordinate, formulate, implement, and evaluate new strategies to adapt to complex and rapidly changing environments (Ziegenfuss 2002).

Army doctrine advocates a hierarchical approach to leadership where strategic leadership shapes organizational culture. Strategic leaders in the Army establish force structure, allocate resources, communicate strategic vision, and prepare for future roles (Army 1999; Shinseki and Hesselbein 2004). Strategic leaders are developed by concentrating on interpersonal, conceptual, and technical competency sets through learning and experience. Military educational institutions like the Army War College are developing ways to assist strategic leaders in developing strategic level cognitive capacity (Holzer 1999; Murray 2000; Heikkila and Isett 2004).

Zaccaro defines cognitive leader capacities as intelligence, analytical reasoning, flexible integrative complexity, cognitive skills, and creativity (Zaccaro 1996; Zaccaro 2001).

Effective strategic leaders understand how to develop a vision that articulates the application of ends (objectives), ways (courses of action) and means (resources) to accomplish national interests (Freeman 2003). The Army War College curriculum is designed for students to gain insights into strategic thinking and decision making through the examples of strategic leaders, strategic theorists and strategic practitioners (Shambach 2004). Strategic leaders integrate vision with resources for organizations to coordinate ends, means, and ways.

Strategic leadership studies indicate that cognitive problem solving skills are defined in terms of skill application of superordinate cognitive functions. Cognitive leadership capacity is a measure of individual ability to effectively use information processing, inductive and deductive reasoning (Jaques and Stamp 1990; Zaccaro 2001). For example, leaders with low cognitive complexity are most comfortable with simple tasks and concepts that can be completed within a year. Leaders with high cognitive complexity have the ability to process complex concepts over a long time frame (Jaques and Clement 1991; Markessini 1993; Heikkila and Isett 2004).

Strategic leader cognitive complexity is associated with strategic level tasks that in some cases may take in excess of twenty years to plan and develop depending on the individual's experience and environment (Kanter 1995; Prahalad 1998). Many strategic leader skills are a result of educational and operational experiences that are important in building cognitive capacity and problem solving skills (Hall 2002;

Heifetz 2004). A combination of experience, cognitive capacity, and personality characteristics tend to favor individuals for strategic level leadership (Jaques and Stamp 1995; Gunawardena, Wilson et al. 2003). Strategic leadership skills can be developed through a number of means such as direct personal interaction and online interaction. Researchers are finding that cognitive development through online learning to be as effective as traditional educational experiences (Bass and Steidlmeier 1992; Schwartzman 2003).

The Army strategic leadership construct is grounded in hierarchical organizational structure because it is thought that this structure helps to facilitate accountability and control. Most organizational hierarchical structures are defined as strategic, operational, and production levels. Elliott Jaques' Stratified Systems Theory (SST) evaluates how leader cognitive skills are a product of combining organizational elements into meaningful patterns. Leaders at various levels in organizations have different skills and abilities in translating mental representations of systems into operational maps of reality based on their educational and experiential background.

Strategic leaders have frames of reference that are oriented toward their experience and the external environment. Jaques defines cognitive power as "the mental force a person can exercise in processing and organizing information and in constructing that map" (Jacobs and Jaques 1990). Strategic leaders must be able to guide an organization to contend effectively complexity and long term planning such as realizing second and third order effects of decision-making as well as cause and

effect chains. Examples of cause and effect chains are the rules and outcomes of policies developed by strategic leaders that address specific issues in organizations.

Stratified Systems Theory (SST): A Strategic Leadership Model

Elliot Jaques and others found that the highest levels of organizational leadership rely on increasingly sophisticated or strategic cognitive capabilities. Cognitive capabilities are important for decision making and interpersonal relationships that set a common direction for organizational members (Jaques and Clement 1991). Jaques' model delineates seven strata of leadership that can be categorized within three categories of strategic, operational, and production levels of leadership. Jaques' seven levels of organizational leadership structure correspond to Mintzberg's theory of divisional management (Mintzberg 1989). Most organizations distinguish between strategic, managerial, and production levels of leadership. Complexity increases at each succeeding level in organizations because of the increasing levels of uncertainty. The level of uncertainty associated with problem solving increases at higher levels of leadership. Higher levels of uncertainty are linked with increasing cognitive ability in complex decision making such as predicting future strategies.

Jaques uses the strata of leadership domain and responsibility model to link leader planning time span with their age as illustrated in Table 2.4 that shows the potential growth of leaders based on the leader's ability to plan measured in time. The individual potential is based on no interruptions to the individual's cognitive development as a leader (Jaques and Stamp 1990). The second line (darkest line on

the chart) from the top of the chart, leaders that are 20 years old in stratum IV management or operational positions have the potential to achieve stratum VII at approximately 65 years of age.

Table 2.4 Institutional Stratum of Leadership Domain and Responsibility (Jaques 1991).

Stratum Civilian/Military Responsibilities	Time Span	Age in Years		
		20 years old	40 years old	60 years old
VII: Strategic CEO/Combatant Command Creates Policy	20+ yrs			
VI: Strategic Corporate Leader/ Corps Command Applies Policy	10+ yrs			
V: Top Management Division Command Directs Complex Organizations	5+ yrs			
IV: Middle Management/ District Leader/ Brigade Command	2+ yrs			
III: Lower Management/ Battalion Command	1+ yrs			
II: Production Manager Team/Platoon Leader	3+ months			
I: Production/ Tactical Individual/Small Group Leader	< 3 months			

Stratified Systems Theory (SST) offers insights to individual leadership development and roles within organizational structures that are important to growth, succession and innovation. SST describes the increasing complexity of leadership duties and roles in an organization that includes several levels of leader performance. The performance levels include direct or production level of performance; operational or mid level performance; and strategic level performance (Jaques 1986).

Organizational modes of operation may include directing operating systems at the production level; general operation of complex systems at an operational level; and strategic mode of operations for the development or deployment of complex systems. Organizational structure emphasizes the need for conceptual skills, flexibility, and competence in each successive level of the organization (Jaques and Stamp 1990; Jacobs 1998). This research design focuses on the top level of the table or the strategic level of leadership. The interaction of strategic leaders with other levels in the organization is important in evaluating cognitive development, communication, and performance.

Table 2.5 illustrates an integration of the structure of Jaques' Stratified Systems Theory to assess leadership attributes of large scale organizations (Jaques 1986). The table includes a comparison of civilian and military leadership levels in organizations to illustrate the roles and functions at each institutional level. Not all organizations have seven stratum or levels of leadership that are depicted in the table but most organizations have production, operational and strategic levels of leadership. This study focuses primarily at the strategic level of leadership however, strategic leaders interact frequently with operational and production level leaders.

The various levels of leadership depicted in Table 2.5 help to differentiate and evaluate the degree of strategic leader roles and responsibilities. This research design focuses on the top domains of military and civilian leadership or stratum IV – VII that are the top two levels (military strategic levels of leadership that are Army Brigade level and above). Strategic leadership Stratum IV-VII are the levels that the majority of general officers and CEOs perform. The table describes the time frames, tasks, domain, and level of responsibility typically associated with each stratum.

Strategic, managerial, and production levels of civilian organizational structure are similar to the military strategic, operational, and tactical levels of leadership as shown in Table 2.5. This study focuses on the strategic level of leadership however, interactions occur between the different levels of leadership. The organizational relationship between the levels of leadership is especially important with the flattening of organizational structure due to increasing interaction of military and civilian agencies.

Globalization is causing civilian and military operations to become increasingly integrated to accomplish the diverse roles and missions such as reconstruction and delivering humanitarian aid. These roles and missions require that leaders have knowledge of many different types of organizational structure for effective operations such as contractors that are supporting military operations in Iraq. For example, strategic level military leaders interact with all levels of international governments, non governmental organizations, and multinational corporations.

Table 2.5 Institutional Stratum of Leadership Domain and Responsibility, Adapted from Level and Type of Capability in Relation to Executive Organization, (Jaques 1991).

Stratum	Time Span	General Task Requirements	Domain Military/Civilian	Military Level of Command
VII	20+ yrs	Creates Policies	Strategic	Combatant Command Army
VI	10+ yrs	Applies Policy		Corps
V	5+ yrs	Direct Complex Systems	Operational / Management	Division
IV	2+ yrs	Allocates to units		Brigade
III	1+ yrs	Develops and executes policy	Tactical/ Production	Battalion
II	3+ months	Directs work; Solves problems		Company
I	< 3 months	Hands on		Platoon/Section

The top section of Table 2.5 depicts the strategic level of leadership that accomplishes long range planning and interfaces with the external environment. The middle level of leadership depicted in the table is the operational or organizational leadership section that is responsible for mid range planning, work coordination and resource allocation. The bottom section of the table is the tactical or production layer

where mission requirements are executed and evaluated. This research focuses on the top level of the table or the strategic level of organizational leadership.

Some academics are critical of SST theory because several research studies indicate that strategic leaders make better decisions when they have greater access to information and developmental systems such as distance education (Paparone 2004). Organizations are also becoming less hierarchical and have transitional structures to adapt to change although most organizations continue to operate with strategic, operational and production levels of leadership. Further research is needed to fill the gap in public administration literature about the complex nature of cognitive development through technological systems such as distance education (Yukl 1998; Heikkila and Isett 2004).

Stratified Systems Theory (SST) helps to explain how military leadership creates conditions for effective organizational relationships. Strata of leadership positions are related to levels of work, responsibility, and complexity. Understanding the various dimensions and potential of leaders provides insights about the level of complexity an individual can generate and the capabilities that leaders prefer in their roles. SST examines leader growth, capability to act in a leadership role that includes taking responsibility at increasingly complex levels (Jaques and Stamp 1995).

Cognitive capacity is an important measure of strategic leader capability to perform higher levels of work because it measures the individual capacity for complexity over time (Jaques and Clement 1991; Heikkila and Isett 2004). SST assumes that bureaucratic organizations need a requisite number of managerial levels

because work at each successive level is thought to be qualitatively different from the other levels. The theory also assumes that individuals are different in the capacity to carry out work at successive organizational levels and self directed means such as distance education (Lewis 1996). Public administrators need multidimensional leadership attributes such as intellectual, social and problem solving skills because of the complexity of public needs and issues. For example, public managers have to carefully balance political, legal, and budget considerations in public planning and decision making because public sector leaders face greater scrutiny than their private sector counterparts.

There are several links between Jaques' leadership studies in the fields of mental complexity and cognitive development. For example, some research suggests that personal leadership development is a series of successive stages of cognitive restructuring that requires assessment and feedback of individual and organizational performance (Piaget 1965; Cummings and Worley 2001). Piaget found that behavior is a means of adapting to the environment utilizing mental organizations or schemes that individuals use to represent the world for equilibrium (Piaget 1965; Huilt and Hummel 2003). Schemes are reflexes to control behavior and are developed through assimilation or transforming the environment and accommodation which is changing cognitive structures to adapt to the environment (Huilt and Hummel 2003). More recent research findings indicate that leaders demonstrate potential for higher level of performance capacity based on their individual conceptual skills and way of acting (Jaques and Stamp 1995; Zaccaro 1996; Bass and Avolio 2000; Donahue 2004).

Conceptual skills include professional competence, conceptual competence, and socio-political awareness (Jacobs and Jaques 1990). Professional competence is the ability of the officer to perform his or her duties including capabilities such as technical competence, quickness in understanding new situations, and knowing how the institution functions (Markessini 1993). Strategic leaders are generally quick learners, provide sound organizational guidance, and have high professional competence in understanding complex situations. These leaders effectively use resources to accomplish the mission and have the expertise in understanding realistic quality standards and keen sensitivity.

Cognitive competence assesses the breadth and depth of the leader's frame of reference and vision as well as their comfort level in developing long range plans and objectives (Jacobs 1998). Individuals with cognitive competence understand how they fit in the larger picture and are able to see all sides of a problem as well as separate the trivial from the important. Socio-political awareness is especially important for strategic military leaders in evaluating the sensitivity to political issues and interests beyond the military. Strategic leaders need to develop a wide range of competencies to compete in political arenas to secure support and commitment such as direct and indirect networks .

Bureaucratic organizations like the Army generally have more supervisory levels than the work actually requires which creates redundancies in leadership roles. Environmental changes are creating new forms of organizational structure that challenge future strategic leaders to think creatively (Collins and Porras 1994). SST assesses and predicts individual ability to perform at different levels of conceptual

complexity in organizations based on the individual's cognitive skills and age.

Strategic leaders need cognitive skills to anticipate and adapt to environmental changes such as crisis, organizational restructuring, and cultural change.

Strategic leaders think and lead in a way that encourages others to commit to an organizational vision based on shared language, participation, and common meaning. For example, Combatant Commanders in military organizations have similar roles as State Department Ambassadors in providing resources to carry out national security policy decisions. The AWC distance education program facilitates a common educational experience for State Department and military strategic leaders to integrate their ideas and experiences in long term planning for national strategy and security. Strategic leaders determine span of control, types of operations, planning horizons, and the extent of influence on global and national perspectives. The highest organizational level leaders need cognitive capacity for complexity and long term planning to perform strategic level duties and responsibilities.

The Modified Career Path Appreciation (MCPA) survey instrument was developed by Gillian Stamp based on Jaques' model to measure individual capacity to deal with complexity and to determine potential for future leadership (Jacobs and Jaques 1990). The leadership growth rate is the rate at which individuals will increase in capacity to handle complexity over time, absent any intervention. This growth rate is of particular interest in determining leader potential for serving as future strategic leaders. Cognitive growth is found to be accelerated by diversity of individual experience and higher education such as the Army War College distance education program (Jacobs and Jaques 1990; Hall 2002).

The statements in the MCPA survey instrument are designed to assess individual capacity for complexity in leadership roles that are a result of experience. The six sets of statements in the MCPA provide respondents a choice ranging from low to high complexity. A range of choices measures the extent to which an individual is comfortable with unstructured, complex, or open ended scenarios. The MCPA is predictive of an individual's potential for growth over time in capacity to deal with complexity that exists at higher level organizations (Stamp 1988; Jaques and Stamp 1990; Jaques and Stamp 1995). The details about how the MCPA survey instrument was utilized in this study is explained in detail in the following methodology and analysis chapters.

Conclusion

As a relatively new and developing field of professional development, distance education is making increasingly important contributions to strategic leader cognitive development as it relates to public administration. Previous studies and theories on leader cognitive development focus primarily on traditional educational programs and operational levels of leadership. This study is grounded in Elliot Jaques' Stratified Systems Theory and the MCPA survey instrument that has been utilized in previous studies that evaluated the potential of leaders in both military and civilian organizations. The SST theory and MCPA survey instrument have not been previously used in leadership studies pertaining to strategic leader cognitive development through distance education.

The literature on strategic leader leadership and professional development is derived from a multidisciplinary field of study. However, there is a gap in the literature concerning leader cognitive development through distance education. Leadership theory is evolving because of the development of new online educational and experiential systems that prepare future leaders for increasing levels of complexity and responsibility. Literature pertaining to strategic leader cognitive development indicates that higher levels of education and diversity of experience are important to evaluating environmental and technological changes (Kanter 1995; Hall 2002). This study is designed to address some of these gaps in the literature and provide some insights based on research about distance education professional development systems that contribute to leader cognitive development.

Chapter 3 Methodology

This chapter presents an overview of the study methodology by identifying the research question, the participants, survey materials, research design, and study time line. The intent of this study is to determine if the Army War College Distance Education program contributes to the cognitive development of senior leaders and what aspects of the program are important. This study uses mixed methods with both quantitative and qualitative data as a way to examine the multidimensional aspects of strategic leader development. The mixed methods process offers a balanced and in depth analysis of strategic leader cognitive development. Mixed methods also supports triangulation of the data and provides the researcher a process to combine the quantitative and qualitative aspects of the research (Patton 1990; Creswell 1998; Denzin and Lincoln 1998). In this study the investigator uses data from surveys, focus groups, and individual interviews to evaluate and triangulate patterns of responses.

Creswell emphasizes that combined qualitative and quantitative designs encourages better understanding of the concepts being explored through triangulation with several sources of data. Denzin defines triangulation as “the combination of methodologies in the study of the same phenomenon” (Denzin 1978). Multi-data approaches to analysis achieve broader and often better results. Triangulation of data includes a mixture of measuring direct reports, feelings, and behaviors from the respondents’ experience with the distance education program primarily from the survey instruments, focus groups, and individual interviews.

The qualitative tradition of inquiry for this research is a case study that examines distance education programs as bounded systems. A bounded system is limited by time and place, such as the specific study of the Class of 2007 at the Army War College analyzed in this work. This case study investigates the success of student cognitive development at the Army War College, with its cultural, physical, political, historical, and social environment (Creswell 1998).

Qualitative research serves to explore human or systems problems by analyzing words, data, and reports that provide detailed views of respondents in a natural setting. In this study, the investigator triangulated data from participant responses to the survey instruments, focus groups, and individual interviews but also examined trends from online threaded forum discussions and written requirements. These multiple sources of data provide patterns and trends about the way respondents approached their distance education experience. The respondents' performance in the program written and forum requirements provided the investigator some insights about the importance of these requirements to leader cognitive development.

Quantitative research in this study uses validating survey instruments such as the strategic leadership course survey and the Modified Career Path Appreciation (MCPA) survey instrument. The strategic leadership course survey was administered after the first course in the distance education program and was designed for respondents to assess how the curriculum, course objectives, online materials, and evaluative requirements contributed to their development as strategic level leaders. The MCPA survey was administered at the beginning and end of the first year of the program and assessed respondent understanding of the transition from managerial

positions at the organizational level to responsibilities requiring indirect leadership competencies at the strategic level. The investigator triangulated data from the course survey, MCPA survey instrument, focus groups, and individual interviews. Results served to identify and explain the unique elements of the distance education process that contributed to strategic leader cognitive development.

An ethnographic audit was used in this study as an element of the research design that involves prolonged observation of the group. The fundamental activities of ethnographers to gather evidence through fieldwork, document respondent viewpoints, and collect verbatim statements from respondents. The investigator observed the respondents over a fifteen month period during their participation in the distance education program. As a member of the distance education program faculty, the investigator observed as well as interviewed, members of the study group (Creswell 1998). The ethnographer observed the respondent behavior and inquired about the meaning of the behavior by studying the course curriculum, student course submissions, and surveys (Passmore 1988; Martin and Frost 1996; Weick and Westley 1996; Creswell 1998).

This study provides an overview of the Army War College culture and community with a detailed description of the distance education program course content, methodology, and the respondents' demographic background. Patterns and trends in the respondents' cognitive growth as a result of completing the distance education program are highlighted by their comments in the study surveys and interviews. This work was accomplished through action research since the

investigator took part in the formal instruction and evaluation of the respondents' course work.

The ethnography of this study seeks to establish a holistic perspective of the cognitive development of strategic leaders through distance education. This research design required considerable time with students and faculty members in order to understand fully the culture of strategic leader development through distance education. An important step of the research process was to audit the distance education program and to examine the organizational environment. The audit was accomplished by evaluating respondent performance records of written and online forum requirements, reviewing course surveys, and talking with the respondents in the focus group and individual interviews. The auditing process provided some insight about the respondents' behaviors, values and assumptions about the distance education process that are presented in Chapter 4. The following section is an overview of the Army War College distance education program and the systems that are used to evaluate leader cognitive development.

Overview of the Army War College Distance Education Program

The mission of the Army War College (AWC) is to prepare selected military, civilian, and international leaders for the responsibilities of strategic leadership; to educate current and future leaders on the development and employment of land power in a joint, multinational and interagency environment; to conduct research and publish on national security and military strategy; and to engage in activities that support the Army's strategic communications efforts. AWC provides both resident and

nonresident instruction. The resident program is a full time, ten month graduate school program and the nonresident or distance education program is a part time, two year program. Only 300 officers are selected each year for the resident program while the non resident education program can accommodate over 400 students each year. The non resident program is called the Distance Education Program and is administered by the Department of Distance Education (DDE).

The DDE program parallels the resident program but is conducted primarily online. Two summer resident courses are part of the program, however. The resident courses take place after students have completed the first five courses in the first year and again upon completion of five more courses in the second year of the program. The summer resident courses are two weeks in duration and are designed to facilitate student and faculty communications as to well as reinforce curriculum objectives through lectures about strategic leadership topics such as ethics, globalization, and civil-military roles. This case study focuses on the first year of the distance education program.

The first year of study in the Army War College Distance Education Program commences in June and ends with the completion of the first resident course the last two weeks of June in the following year. The online study consists of courses in Strategic Leadership, International Relations and the Use of Power, National Security Policy and Strategy, War and Military Strategy, and Department of Defense Organization and Strategy. The following table and section is a summary of the courses that are in the first year of the Army War College Distance Education Program and a detailed explanation of each of the courses. The first year of study is

designed to prepare the student for strategic leadership roles and responsibilities and challenges the student with strategic level issues, critical thinking skills, and graduate level writing skills.

Table 3.1 Department of Distance Education Curriculum Schedule

Course 501	Course 512	Course 522	Course 532	Course 541
Strategic Leadership	International Relations and the Use of Power	National Security Policy and Strategy	War and Military Strategy	DoD Organization, Planning and Strategy
Starts: 1 June Ends: 1 August	Starts: 1 August Ends: 1 October	Starts: 1 October Ends: 1 December	Starts: 1 December Ends: 15 February	Starts: 15 February Ends: 30 April
Topics: Leadership Skills, Environment, Application	Topics: International Relations Theory, Transnational Interests	Topics: U.S. Foreign and Security Policy, Sources of Influence, Policy Models	Topics: Military Element of Power, Evolving Nature of War	Topics: Joint Strategic Planning, Programming, Budgeting System

The Strategic Leadership course is a foundational course in the distance education program and provides students an overview of strategic level leadership theory and practice. The course focuses on differentiating between strategic and operational or tactical level, of leadership and the importance of values-based ethical behavior, decision-making, and contending with a vulnerable, uncertain, complex, and ambiguous (VUCA) environment. Students are required to evaluate leadership competencies and skills at the strategic level. Historical case studies provide students the opportunity to assess the strategic level leadership competencies and critical thinking skills of a strategic level leader.

The International Relations and Use of Power course places ideas about international relations in a historical context as well as evaluating prominent realist, constructivist, and liberal schools of international thought. Students are required to analyze the roles of various actors in the international system such as states, organizations, and multinational corporations. The course focuses on the post-Cold War period and an integrated globalizing world that must also contend with instability, insurgencies, and terrorism. Transnational problems are reviewed to evaluate challenges applicable to security and the use of diplomatic, informational, economic, and military power.

The National Security Policy and Strategy course examines the formulation and execution of U.S. foreign and security policy and makes the connection between theories of international relations and domestic sources of influence. Various policy making models and several case studies of foreign and national security policy provide students insights to the policy process. The U.S. national security policy formulation procedures are reviewed with emphasis on the interagency process and the organization and operation of the National Security Council.

The War and Military Strategy course is a study of the military element of power and emphasizes the permanent yet evolving character of war. The readings and online forum discussions focus on how conflict shapes strategic thought and military practice. The course includes both classic and contemporary ideas on war and the formulation of military strategy with readings such as Clausewitz, Colin Gray, and Sun Tzu.

The Department of Defense Organization, Planning, and Strategy course provides students with an understanding of the interrelationships of the Joint Strategic Planning System, the Joint Operations Planning and Execution System, and the Planning, Programming, and Budgeting System. Students examine the effects of the Goldwater-Nichols Defense Reorganization Act of 1986 on the Department of Defense. Students also receive an overview of the Army and Department of Defense Acquisition System providing a study of weapon and equipment development and fielding.

Upon successful completion of the five first year courses, students were required to participate in the two week, First Resident Course at the Army War College in Carlisle Barracks, Pennsylvania from 19-29 June 2006. Students participated in seminar discussions, lectures, and conducted research on topics of strategic interest. The lectures covered topics that were complementary to the program curriculum such as diplomatic, economic, informational and military issues. The Class of 2007 had lectures and discussions by several renown speakers such as Dr. Silliman, Director of the Duke Law School and former Air Force Judge Advocate General who spoke about ethical issues surrounding military operations in Iraq and former Congressman Lee Hamilton who spoke about the role of Congress in security affairs. After the lectures, students had the opportunity to interact with the speakers during a thirty minute question and answer period. Most lectures were followed by seminar discussion periods where students could discuss important points from the lectures in small groups.

The seminar discussion periods help students to think critically and to enhance their understanding of issues from the lectures. Distance education students were also able to develop face-to-face relationships with their peers enhancing their online communications. The resident course also allows students to meet personally with the college faculty, staff, and take advantage of services such as library, computer, and wellness programs. Several social events were conducted during the first resident program so that students could develop interpersonal relationships with fellow students and faculty members.

Distance Education Program Curriculum and Evaluative Requirements

Table 3.2 is a summary of the curriculum systems and evaluation standards that were used in the Army War College Class of 2007 program. Curriculum readings, videos, and other online activities are the core material to support lesson and course objectives. Each course draws from a variety of resources including books, journal articles, and online data sources to provide students a variety of perspectives on selected topics. Interactive modules and simulations provide opportunities for students to evaluate and test aspects of the course material. The interactive modules provide students the opportunity to gain in depth analysis of specific course themes. Simulations allow students to test course doctrine and themes in a variety of scenarios in order to gain insights of second and third order effects of decision making and role playing. These dynamic and diverse curriculum materials and systems are used in many different types of distance education programs.

The evaluation criteria for each of the five courses of study are generally based on a requirement for students to complete two written requirements and participate in a course forum. The written requirements are related to the course learning objectives and the responses to the topics are limited to 1500 words in length. In addition to the written requirements, students are required to participate in a week long course forum which is a threaded discussion that centers on the course subject and readings. Students are required to post entries on a daily basis summarizing an assigned topic that is linked to the course readings. Forums provide students the opportunity to share their perspectives and detailed discussion of course topics and issues. Online discussions and writing requirements contribute to distance education student learning and motivation (Berge and Schrum 1998).

Table 3.2 Distance Education Program Systems

System	Description and Purpose
Curriculum Readings and Videos	1200 pages of online reading per course and video materials from lectures, journals, etc.
Learning Modules and Simulations	Assess student understanding and comprehension; support role playing and future studies
Written Evaluation Requirements	Two written 1500 word requirements focusing on course readings and issues
Forum Evaluation Requirements	5-7 day interactive discussions for students on course topics; faculty facilitation and evaluation of participation

Students are required in forums to synthesize course readings and to use critical thinking to formulate their concepts. Students make the forum entries into designated online folders that are used as a system of exchanging and tracking discussion about course topics. The students overwhelmingly enjoy the forums more than the written requirements because the “online discussion” is less structured than written requirements although the total time involved is about the same as the written requirements. Evaluation criteria for forum discussions are generally less rigorous than written requirements and students are rewarded for their contributions to the discussions. The writing and forum requirements were evaluated by the faculty as a means to assess respondent understanding of the program objectives.

Standards for student performance are defined in the Army War College policy for written submission and oral presentations. Students are expected to be actively involved in the seminar learning process of contributing as well as listening and challenging ideas. Written requirements are expected to be presented at the graduate level that synthesizes and analyzes sources instead of description and opinion. Students are given numeric evaluations for writing and forum requirements (Level 1-5) that are similar to alphabetic grades with a grade of 1 meaning failure to meet standards; 2 meaning incomplete work; 3 means meets standards; 4 means exceeds standards; and 5 means outstanding. A grade of 1 or 2 requires students to resubmit their requirements and students that receive three failing evaluations are placed on academic probation.

Evaluation focuses on content, organization, and style with content being weighted most heavily in the final evaluation. Feedback on student progress is

provided in comments on each student submission and students are encouraged to contact faculty members to discuss their performance. An academic feeder report is prepared by the faculty for each student and is included in the student's file for inclusion in the academic evaluation report that is prepared at the end of the distance education program. The academic evaluation report becomes part of the students' official personnel file.

Research Question

The research question for this study is: Do U.S. Army War College students increase their cognitive skills by completing the first year of the U.S. Army War College Distance Education program?

Participants

This research design was directed at approximately 426 military and civilian students that were selected for the Class of 2007 Distance Education (DDE) program. The attrition rate in the Class of 2007 was approximately 30 percent or 130 students in the first two months of the program primarily due to the heavy time commitment required of the program. This study focuses on the military population of 285 students that completed the first year of the distance education program.

The Class of 2007 experienced a 32 percent level of attrition as a result of a combination of personal, academic, and professional conflicts. Some of the reasons students leave the distance education program are because of conflicting professional and personal responsibilities such as frequent travel, deployments, illness, or family

issues. In some cases the students find the academic requirement and time commitment to be overwhelming.

Military students in the distance education program were selected by a Department of Army board based on their demonstrated performance of duty and potential for increased responsibility. Over 70 percent of distance education students were comprised of reserve component officers who have a wide variety of leadership skills and competencies because of their civilian and military vocations. Attending the Army War College was a means to accomplish military educational requirements for promotion to higher levels of leadership and selection for strategic level leadership positions. The purpose of the distance education program was to prepare senior officers for strategic leadership roles and responsibilities.

This study population was comprised of military officers and the demographics are presented in Chapter 4. The civilian student population response was limited to less than five respondents and was not included in the data. The predicted response rate to the survey instrument was approximately 50 percent or approximately 150 student respondents. The response rate to the first survey was 125 students or 44 percent of the military student population. The second survey response rate was 67 students or 24 percent of the total student population. The paired t-test and final analysis is based on the 67 respondents from both the pre and post test surveys. This response rate was thought to be representative of the respondent population because the demographical data was similar to the entire study population; i.e. the student body is fairly homogenous. The control group was comprised of five

students who deferred or disenrolled at the beginning of the distance education program (within the first course or first month of the program).

Instruments

This study employed a mixed methods approach of collecting and analyzing quantitative and qualitative data. The qualitative data collection and analysis were based on survey instruments, focus group, and individual interviews to achieve broad and rich results. The quantitative data consisted of the MCPA survey and the Strategic Leadership Course Survey Report. The MCPA survey instrument uses nine different phrase sets or statements to assess leader cognitive development. It has been used in a number of studies and is currently used in several other senior service colleges and other organizations to examine strategic leader cognitive development (Jacobs and Jaques 1990). The Strategic Leadership Course Survey Report presents data concerning student satisfaction with the course curriculum, materials, and evaluative requirements. Studies have found that student satisfaction and affinity with education programs contributes to the adult learning process and cognitive development (Holzer 1999). This report provides insights to the students' perceptions of the effectiveness of the course materials, participation in online forums, and evaluation of written and forum requirements.

The qualitative data was derived primarily from respondent focus group discussions and individual interviews. The intent of the discussions and interviews was to get respondents to explain their responses to the surveys and describe their experiences with the distance education program. The focus groups and individual

interviews were designed to help explain the survey data and provide some insights about the effects of distance education in the strategic leader cognitive development process. Each of the data sources provided different perspectives to help illuminate how the distance education program contributes to strategic leader cognitive development. Table 3.3 is an overview of the primary instruments that were used in this study.

Table 3.3 Overview of the Primary Study Instruments and Data Sources

Instruments & Data Sources	MCPA Survey Instrument	Course Survey	Focus Group Interviews	Individual Interviews
Description	Measures Leader Cognitive Skills	Measures Student Satisfaction with Course	Group Assessment of Leader Cognitive Development through Distance Education	Individual Assessment of Leader Cognitive Development through Distance Education
Type of Data	Scientific & Interpretive	Scientific & Interpretive	Interpretive	Interpretive

Quantitative measures

The investigator used the MCPA survey instrument to measure Army War College student cognitive development at the beginning and end of the first year of

the distance education course. The correlation coefficient in the MCPA survey instrument is 0.79 which is the predicted rate of growth of capability and the level of responsibility in four different organizational settings (Stamp 1988). The construct validity of the MCPA survey instrument is based on studies that include multinational oil and chemical companies as well as previous studies with general officers and a study with the British Army Staff College (Stamp 1988; Jaques and Stamp 1990).

In this study, differences in the measures of the MCPA survey instrument at the beginning and the end of the distance education program indicate the impact of the Army War College Distance Education curriculum on cognitive development of the respondent population. The MCPA survey included questions to establish demographic parameters such as rank, education level, branch of service, gender, and ethnic group. A copy of the questionnaire is included in Appendix A.

The MCPA survey instrument identified the respondents' current capacity to contend with complexity. The measures of capacity correlate to the levels of complexity found at various levels in the organizational structure. For example, strategic leaders need to develop attributes associated with a strategic level of leadership task complexity as denoted in Jaques' Stratified Systems Theory (Jaques and Stamp 1990). The results of the MCPA survey instrument provided an indication of the individual ability to handle strategic levels of complexity and the potential to perform his/her duties adequately (Stamp 1988; Jacobs and Jaques 1990; Jaques and Stamp 1995). For example, the Stratified Systems Theory helps to predict the level of cognitive complexity respondents will be in the future based on the respondent's age and level the respondent is placed as a result of the response to the MCPA survey.

The growth rate is the rate at which the individual will increase capacity to handle complexity over time, absent further intervention (Jaques and Stamp 1995).

Everyone grows cognitively over time, but respondents grow cognitively at different rates based on their cognitive skills and experience. Cognitive growth can be enhanced by educational and developmental experiences such as completion of the Army War College Distance Education Course (Markessini 1993; Hall 2002; Schwartzman 2003).

The MCPA survey instrument consists of nine phrase sets that evaluate leader cognitive capacity such as how they use information to perform tasks and achieve outcomes. Phrase Set 1 evaluates guidance and framework to accomplish work; Phrase Set 2 evaluates types of information and tools; Phrase Set 3 evaluates the rules used in decision making; Phrase Set 4 evaluates the type of approach strategic leaders take in performing tasks; Phrase Set 5 evaluates the method strategic leaders use to evaluate problems and issues; Phrase Set 6 evaluates the procedure strategic leaders use to accomplish a task; Phrase Set 7 evaluates how strategic leaders deal with gaps of information and knowledge; Phrase Set 8 evaluates how strategic leaders develop various solutions; and Phrase Set 9 evaluates the way strategic leaders accomplish solutions. The analysis of the data pertaining to the nine different phrase sets is presented in Chapter 4 and provides some insights to multidimensional aspects of how strategic leaders contend with leadership roles. The nine phrase sets provide a diverse assessment of leader competencies that are especially important at the strategic level.

Table 3.4 MCPA Survey Responses to Levels of Organizational Leadership

Phrase Set 1 Responses	Level of Organizational Leadership
1. Work to a complete set of instructions	Production or Tactical Level
2. Work within a given framework	Production or Tactical Level
3. Work with connections even if particular links are unclear	Operational Level
4. Work in abstracts and concepts	Operational Level
5. Work with a minimum of preconceptions	Strategic Level
6. Define the horizons of work	Strategic Level

The phrase sets in the MCPA survey instrument evaluate the respondents' ability to work at one of the six organizational levels ranging from the lowest level of production or tactical leadership to the highest strategic level of leadership. The phrase set responses were listed in random order on the MCPA survey instrument in order to assess the respondents' preference. The survey responses were evaluated using a scoring key that rank orders the responses of the instrument from Level 1 to 6 that is illustrated in Table 3.4. Levels 1 and 2 responses are associated with the lowest production level of leadership that have direct and short term leadership roles, such as shift leader or team chief. Level 3 and 4 responses are associated with operational level of leadership with increasingly complex responsibilities over longer periods of time, such as department head or project manager. Level 5 and 6 responses are associated with strategic level leadership roles and responsibility, such as the visionary roles of corporate presidents and agency directors.

The ordering of the survey instrument responses by level of leadership described in the previous section allowed the investigator to measure the change in the responses over time. The following responses to the MCPA phrase sets were presented in random order to the respondents. The investigator used a key to code the responses. The order of the responses assisted the investigator in determining the affinity of the respondent to the various levels of thinking as production, organizational, or strategic level of leadership. In this study, the responses to the survey were on average at the organizational and strategic level of leadership. The data were then evaluated by the investigator to determine the respondent affinity to various levels of leadership cognitive thinking and decision making skills. The analysis of the quantitative data was extended to evaluate overlaps with qualitative data.

Each of the Modified Career Path Appreciation (MCPA) phrase sets has six different statements that were mentioned in the previous section. Respondents selected one of the six statements (based on their level of cognitive capacity) that described the thinking skills needed to perform at the strategic, operational, and production levels of organizations. MCPA survey statements are a measure of how individuals think about work, the conditions in which they like to work, and or the kind of work they like to do. The MCPA survey instrument correlates the extent to which individual respondent cognitive development has kept pace with their cohorts. The survey also projects the respondents' potential for future growth as a strategic level leader.

Respondents were also asked to describe their time horizons or the planning factors that they use for the future as measured in years as their final question in the MCPA survey instrument. The statement responses were scored together with the time horizon to determine the trend of the cognitive development of the population. The data provided some insights about levels of complexity and long term cognitive thinking skills respondents developed as a result of the first year of the Army War College distance education program.

The MCPA survey instrument provides space after each phrase set for respondents to explain their phrase set selections and how it may relate to their distance education experience. The narrative explanations provide some qualitative data that was useful in data analysis and research findings. The data derived from this section of the survey instrument were considered in the qualitative analysis along with the data from focus groups and individual interviews. The respondents' explanation in the surveys, focus groups, and interviews resulted in some overlapping themes that are discussed in the next chapter.

The statements in the nine MCPA phrase sets were presented to the respondents in scrambled order. The statements that were oriented to lower levels of leadership were direct in nature, concrete, and oriented to production or operational level leadership. The statements oriented to higher levels of leadership were abstract, descriptive of low structure, and oriented to the strategic level of leadership. The set of responses measure the extent to which individuals were comfortable with unstructured and complex situations which are the more complex frames of reference associated with higher leadership positions. The MCPA was predictive of an

individual's potential for growth over time and capacity to deal with complexity at higher levels of organizations (Jacobs and Jaques 1990).

The MCPA survey instrument provides a measure of three dimensions that are important for success in dealing with unstructured complexity at the highest levels in organizations. The three dimensions are the ability to contend with abstract concepts; cross-reference from one type of problem dynamic to another; and use both rigorous analytical and evaluative integrative logic. The ability for strategic leaders to use both analytic and integrative logic is essential because of the nature of the complex time frames that occur at the strategic level of leadership.

Analytic skills enable leaders to envision what needs to happen despite turbulence; integrative skills enable leaders to create a picture of what conditions are necessary in providing direction. The MCPA is an indicator of the probable individual level of complexity and a predictor of the individual's developmental ceiling. Correlations with other measures in the battery suggest that someone who has a high MCPA score is more tolerant of ambiguity, is intellectually inquisitive, and thinks reflectively (Jaques and Stamp 1990).

The Strategic Leadership Course Survey is another instrument that was designed so students could assess the course curriculum and provide feedback about how the course contributed to their development as strategic level leaders. The strategic leadership course survey was posted in the online course materials from May-August 2006 and consisted of twenty questions evaluating the course curriculum, online materials to include readings, videos, and forums, and the overall level of satisfaction of the respondents with the course. The results of the survey

were compiled into a report that assessed student opinions of the respondent population. Analyses of the data from the strategic leadership course survey are presented in Chapter 4.

Qualitative Measures

This study also used standard qualitative (ethnographic) research techniques to gather data. The first step in this data collection process was to prepare a detailed interview protocol that is synopsized in Table 3.5. The interview protocol was designed to provide additional details about the ways students respond to the MCPA survey instrument phrase sets.

The focus group and interview questions were developed by the investigator to further assess the respondents' responses in the MCPA survey instrument about their experience in the distance education program. The intent of the focus groups and interviews was to allow the respondents' to explain their survey selections and to discuss how the distance education program contributed to their cognitive development. The qualitative data was useful in explaining how distance education information networks, experiential learning, and forum discourse contributed to the significant quantitative findings from the MCPA survey instrument.

The interviews and focus groups were two way conversations between the investigator and respondents that required specific questions to be asked of the respondents and the investigator listening to patterns in responses. The investigator conducted the focus groups and interviews and collated the data to produce findings that were grounded in specific responses or episodes pertaining to the respondent's

experience with the distance education program. The qualitative data was extensive because of responses from the numerous pre and post survey entries, as well as the 10 interviews, three focus groups, analysis of online forum transcripts, and course surveys. Field notes were taken for all interviews and focus groups. Respondents were selected through a homogeneous and typical case sample methodology with every effort made to ensure a representative sample (Creswell 1998). Table 3.5 provides a comparison of the MCPA survey instrument, focus group, and individual interview questions used by the investigator to evaluate and measure respondent cognitive development through distance education.

Table 3.5 Comparison of MCPA Survey, Focus Groups and Interview Protocol

MCPA Survey Phrase Set Themes	Focus Group and Interview Themes
1. Guidance and Approach to Tasks 2. Ways Leaders Use Information/Tools 3. How Leaders Approach Rules 4. Ways Leaders Approach Tasks 5. Methods Used to Accomplish Tasks 6. Procedures in Solving Issues 7. Approach to Gaps in Knowledge 8. How Leaders Derive Solutions 9. Results of Leader Actions	1. How has time invested in the Distance Education (DDE) program contributed to your cognitive development as a leader? 2. What aspects of the DDE program challenges and support your cognitive thinking skills? 3. How might you describe any changes in your ability to contend with complex situations that can be attributed to the DE program? 4. Did you participate in any other professional development or educational programs this past year? 5. What implications do you think a deployment had on your cognitive development?

Long Term Planning Time Frame (years)	6. How did you determine your long term planning time horizon?
Challenges of strategic leaders and distance education students	7. What are the greatest challenges for strategic leaders? 8. What are your greatest challenges as a DDE student?
Ways to make the survey process and DE program better.	9. How helpful was it to explain your selections in MCPA survey instrument? 10. What would you change about the DDE program to better prepare for strategic leadership roles?

The investigator is a member of the Army War College Distance Education faculty and has had access to many aspects of program development and implementation. Subject matter expertise is important in putting into context the findings and challenges of collecting and presenting data without bias. The investigator's colleagues provided technical and subject matter expertise as annotated in the Acknowledgements.

Research Procedures

The data for this study was collected throughout the first year of the Class of 2007 that commenced in May 2005 and ended in late June 2006. The first set of data collected was through the MCPA survey instrument pretest that was administered in the first month of the distance education program in May 2005. The second set of data was collected through the Strategic Leadership Course survey instrument that was administered from June to September 2005. The third set of data was collected from the MCPA survey instrument post test that was administered at the end of the

first year of study in May 2006. The fourth and fifth sets of data were the focus group and individual interviews that were conducted in June 2006.

The investigator obtained Army War College and The Pennsylvania State University approval through their internal review processes. The respondents were provided directions explaining the voluntary nature of their responses to the survey, focus groups, and interviews. The research results were used only to assess the effectiveness of the Army War College Distance Education Program. Only aggregate results of the instrument were reported to ensure respondent confidentiality.

Informed consent forms were presented and received from the respondents prior to the distribution of the survey instrument. To ensure confidentiality, the MCPA instrument was distributed to students in the Class of 2007 both through mail and an AWC website. This procedure also served as a means for increasing the response rate because the class had at least two opportunities to respond to each survey. Reminders were sent to the students every two weeks as a means to increase the participation rate. The survey was placed on a secured intranet site that required the respondents to use their secure access to log on and complete the survey.

Upon receipt of the completed survey instrument, the researcher created a Statistical Package for the Social Sciences (SPSS) data base to analyze the quantitative data and a word processing procedure to organize the qualitative responses. The MCPA survey instrument was scored by evaluating the mean of the six possible responses to each of the nine phrase sets. This process was completed (at the beginning and end of the first year of the distance education program) to measure changes in the respondents' cognitive capacity. The collective choices suggested the

level cognitive capacity at which the respondents liked to operate and their propensity for future service at strategic leadership levels that required increased cognitive capacity.

The surveys were coded by the respondents with their AWC log on numbers to prevent duplication and to track responses. When the online survey instruments were received by the investigator, the assessment results were kept secured and confidential by using secure Army War College internet sites. Copies of the mailed surveys were secured in locking filing cabinets to ensure respondent confidentiality and anonymity.

Respondents were notified in the survey instrument about the focus group and individual interviews that were scheduled during the first resident course. The respondents were reminded of the interviews a second time when they arrived at the Army War College for the first resident session to help promote participation. The focus groups and individual interviews were designed to add to data from the survey instrument and provide additional insights about their distance education experience. The focus groups consisted of 6-8 students from the population of students that met to discuss questions and issues presented in the interview protocol located in Appendix A. The intent of the focus groups and individual interviews was to explore exactly how the distance education program contributed to strategic leader cognitive development. The investigator facilitated the focus group and interview sessions that took place in the Army War College seminar rooms and library conference room. These separate sessions allowed the facilitator to provide respondents a comfortable setting for the interview process.

The interviews commenced with personal introductions followed by specific questions such as “what aspects or materials of the first year of the distance education program were helpful to you as a leader?” The investigator ensured each member of the focus group had the opportunity to speak about their personal experience with the distance education program by calling on each member of the group by name. The focus group and individual interview sessions were at least 40 minutes in duration and longer in some cases. Respondents were eager to share their experiences and thoughts about the distance education program and their development as a leader. After the focus group and individual interview, the investigator compared these results with the survey results.

The narrative explanation of each phrase set selection in the survey instrument was evaluated by the investigator to determine if there were any patterns or trends in student cognitive development. Survey instrument responses were compared with interview and focus group responses. The overlap of some of the data indicated triangulation or multiple forms of overlapping, diverse pieces of evidence and perspectives. Triangulation in this study was evaluation of quantitative and qualitative data for overlapping themes in order to overcome bias and seek a holistic explanation of how distance education contributes to leader cognitive development. There is greater validity in the findings using multiple forms of evidence and perspectives (Eden and Huxham 1996).

During the first resident course, the investigator presented a noon time briefing to interested students on some general findings from the study such as the significant quantitative data and themes from the qualitative data. The purpose of the briefing

was to give the students an overview of the study results as well as allow them to ask questions. Over 100 members of the class attended the briefing which was also broadcast into the seminar rooms by the Army War College broadcasting system. The briefing attendees were given the opportunity to ask questions about the research methodology and findings. The study events took place as scheduled and the investigator was able to achieve the study milestones.

Table 3.6 summarizes the major milestones of this study as described in this chapter. The milestones served as a way to anticipate and review the major events in the study such as tracking survey responses and scheduling the focus groups and interviews. The investigator provided quarterly updates to the dissertation chairman to keep him apprised of progress in the study.

Table 3.6 Research Design Milestones

Action Item	Start Date	Actual/Projected Completion Date
Post and Mail Research Letter and Consent Form	15 May 2005	15 June 2005
Email 1 st MCPA Survey to Students	15 June 2005	30 July 2005
Analyze Data from Course Survey	1 October 2005	30 November 2005
Email 2 nd MCPA Survey to Students	9 February 2006	1 May 2006
Analyze Survey Data	1 May 2006	30 May 2006
Conduct Focus Group and Individual Interviews	19 June 2006	29 June 2006
Brief Students on Research	19 June 2006	30 June 2006
Complete Analysis of Focus Group Data	1 July 2006	1 July 2006
Complete Thesis	1 August 2006	1 September 2006
Doctoral Defense and Thesis Submission	15 September 2006	30 November 2006

Summary of Data Administration

The majority of empirical studies on strategic leadership are studies with samples that primarily use interview methods (Stamp 1988; Markessini 1993). The interview method is a common approach to strategic leader research but has limited internal validity (Rossi, Freeman et al. 1999; O'Sullivan, Rassel et al. 2003). Most of the previous studies were small, limiting the application of inferential statistics and resulting in conclusions based primarily on descriptive analysis. The intent of the focus group and interview data in this study was to maximize validity and reliability by comparing the quantitative data from the MCPA instrument with qualitative data.

Focus groups provided qualitative data through interviews that involved questioning of several individuals simultaneously in an informal setting. Group interviews offered the advantage of being inexpensive, data rich, flexible, and cumulative (Patton 1990; Krueger 1994). Focus groups have high face validity and capture the dynamic nature of group interaction as well as allowing flexibility for the investigator to explore unanticipated issues that may not be identified in the survey (Krueger 1994).

Table 3.7 is a summary of how the surveys, focus groups, and interviews were administered in this study. The table denotes the number of iterations of each of the protocols, size of the protocol groups, and some remarks about the demographic make up of the protocol population. The intent of this table is to illustrate the diversity of data that was collected and analyzed in this study as a means to evaluate a continuum of quantitative and qualitative data. Extensive use of multiple sources of data

provided an in-depth picture of how informational networks, experiential use of the course material, and the forum discussions contributed to leader cognitive development.

Table 3.7 Administration of Survey, Focus Groups and Interviews

Protocol	Application of Protocol	Size of Groups	Remarks
Quantitative: MCPA Survey Instrument	Pre Test: 130 Respondents Post Test: 67 Respondents	Individual	Survey Sent to Entire Course Population of 285
Quantitative: Student Survey Report	234 Responses or (61%): Survey Followed Strategic Leadership Course	Individual	98% Satisfaction that course contributed to professional development
Qualitative: Individual and Focus Group Interviews	10 Individual Interviews; 3 Focus Group Interviews	10 respondents 3 focus groups	Cross Section of Respondents from Population
Qualitative: Forum Transcripts	2 Strategic Leadership Forums	40 respondents	Assessment of Forum Dialogue

The investigator used qualitative observation of student participation through writing assignments, forum dialogue, and online surveys to triangulate the findings and build an in-depth picture of the case. The investigator's experience as a distance education faculty member provided ethnographic insights of student performance through program communications and evaluations that added to the context to the

study findings. Distance education systems provide many different forms of rich observational data such as trends and patterns from surveys, forums, focus groups, and individual interviews that are presented in Chapter 4. These quantitative and qualitative sources of data provided a holistic overview of the distance education system and illustrate how the different aspects of the program relate to each other.

Delimiters/Limiters

This study evaluates the cognitive development of leaders enrolled in the Army War College distance education program and are projected to serve in a variety of challenging strategic level organizations. The diversity of Army War College Class of 2007 respondent population is delimiting in that it replicates some civilian functions such as joint or interagency staffs. For example, respondents in this study have diverse experience with civilian, federal, and international agencies such as the State Department. On the other hand the study is limiting in the way the population of the study respondents are solely military officers.

The first limitation is related to the size and homogeneity of the study population. This limits generalization to other educational institutions and programs. Only 67 or 24 percent of the Class of 2007 responded to both the pre and post survey so the results of the data must be interpreted with caution. The Army War College distance education program population is also fairly homogenous. Ninety-four percent of students are male Caucasians, and 70 percent have some graduate level educational experience. Most other graduate level distance education programs have much greater percentage of females and are more ethnically diverse.

The second limitation is that the mission, vision, and strategic goals of the Army War College are different from most graduate level distance education programs offered at public universities and colleges. Officers are selected for the Army War College based on their professional rather than academic background and performance. Army War College admissions requirements are not tied to the Graduate Record Examination or review of undergraduate academic records. All officers are required to have a bachelor's degree however; the lack of the students' academic background inhibits their participation in forums and requires considerable instructor guidance to complete written course requirements. The Army War College is, accredited by the Middle States Association of Colleges and Schools that also accredits public universities and colleges in the Commonwealth of Pennsylvania and surrounding states.

The third limitation of this research is the inability to provide students feedback on their completed survey instrument because the feedback would have helped the students focus on their strengths and weaknesses. The Army War College adopted a policy in 2005 to move the leadership feedback program from the college to the Army Physical Fitness Readiness Institute (APFRI) that is also located at Carlisle Barracks, Pennsylvania. The relocation of the Army War College Leadership Feedback program during this study was a result of an institutional change of policy that subsequent to this study provides detailed feedback to students on the results of the survey instrument. Specialized APFRI staff members were not available to provide individual respondents feedback. However; the respondents were given an overview of the research findings by the investigator during the first resident course.

The feedback to the individual students may have contributed to the respondents' knowledge and ability to develop specific aspects of their cognitive thinking skills.

The fourth limitation of this study was that many respondents reported in the individual and focus group interviews that they had participated in other professional development programs. The majority of the respondents indicated that these were generally short term and related to their specific civilian careers, such as equal opportunity, or accounting analysis. These student experiences may have impacted the outcome of this study in comparison with other graduate level studies. It was also difficult to make comparisons between the study respondents and typical graduate students because of the unique and diverse background of military officer professional experiences and assignments.

Conclusion

This chapter presented an overview of the ethnographic procedures used to collect, analyze, and triangulate data along with explanations of why the procedures and methods were selected and implemented. This overview includes a synopsis of how the case study was developed, the research question, selection of participants and materials, the research design procedures, plus limiters and delimiters of the study. This information is important to understanding the context and the conditions in which the study was designed and conducted so the methods can be duplicated. The final part of the chapter identifies delimiters and limiters that may contribute or distract from the overall outcome of the study such as the homogeneity of the study population.

Chapter 4 Analysis and Results of Study Data

The purpose of this chapter is to present the data and analysis from this study. Both the quantitative and qualitative data indicate there was significant change in student cognitive development as a result of the completion of the first year of the Army distance education program. These findings caused the investigator to ask what the reasons for the significant changes were and what aspects of the distance education program can be attributed to the change? The investigator concluded that the increase in leader cognitive thinking skills was the result of three major factors: use of distance education organizational subsystems (networks), the application of the program material to the respondents' leadership experience (experiential), and use of online forum discussions in developing the respondents' thinking skills (discourse).

The first part of this chapter is an overview of the results and triangulation of the quantitative and qualitative data from the surveys, focus groups, and individual interviews. The second part addresses organizational subsystems (networks) in the cognitive development of strategic leaders. The third part is a summary of the results and analysis of the study data.

This study called for the measurement of the cognitive development of the respondents before and after "treatment" which is defined as the completion of the first year of the Army War College (AWC) distance education course of study. The MCPA Survey instrument was used to gather some of the data. The MCPA quantitative data was evaluated using a paired t-test to examine leader cognitive development as a result of completing the distance education program. The investigator also analyzed the MCPA post data with the respondent population

demographic data. Statistical analysis indicated a significant change in the respondents' cognitive development following completion of the first year of the distance education program. The pre-treatment data was a measure of student cognitive capacity prior to respondents starting the distance education course. Post-treatment data measured cognitive capacity upon completion of the first year. Qualitative data from the surveys, focus group, and individual interviews also resulted in some significant findings. Correlation of the treatment and demographic data did not indicate there was relationship between gender, ethnic group, age, or educational experience and strategic leader cognitive development. This finding may be attributed to the fact that the study population was fairly homogenous.

In addition to the MCPA survey, a strategic leadership course survey was administered and measured respondent satisfaction with the online curriculum materials and evaluative requirements. Studies have found that student satisfaction with distance education materials contributed to their cognitive development. The results from the course survey indicated that respondents found the online informational networks, the ability to exchange ideas in the forums, and applying what they had learned to their personal experience significantly contributed to their cognitive development. The respondents' comments from the surveys, focus groups, and individual interviews indicated that informational networks, forums, and application of the distance education program to their personal experience contributed to their cognitive development.

Qualitative data was collected from focus group and individual interviews while the students were attending the first resident course at the end of the first year

of the distance education program. The investigator was able to conduct face to face interviews in addition to the online surveys which provided a personal way to confirm the triangulation of the data. The focus groups and individual interviews gave respondents the opportunity to explain and provide specific examples about how the distance education program contributed to their cognitive development. Rigorous collection and analysis of the quantitative and qualitative data such as respondent comments in the survey instruments, focus groups, and interviews which were the primary sources of data were used to triangulate and analyze the study findings.

Other data such as the forum transcripts and respondent academic records provided some additional insights. This data along with the focus group and individual interview data were analyzed with regard to patterns and trends from the data and organizational subsystems such as culture, structure, technology, management, and psychosocial networks. Triangulation indicated a pattern in the data that distance education program networks, application of course concepts to respondent experience, and forum discussions contributed to respondent cognitive development.

Demographical Data

The Army War College Distance Education Class of 2007 initially had a population of 426 students however; there were only 295 remaining in the program at the end of the first year. Over 131 students deferred or disenrolled from the distance education program. Of the 295 students remaining at the end of the first year, 10 were civilians but only 4 of the 10 responded to the pre test survey. The investigator

decided to limit the study to military officers since so few of the civilian students responded to the survey, so this study is based on a population of 285 students. The attrition of the class was attributed primarily to increasing military deployments and personal issues. Students faced many competing demands on their time because of professional and personal needs such as changes in work load, family dynamics, and retirement.

In the population of 285 military students, 27 percent of the military members hold the rank of Colonel and 73 percent hold the rank of Lieutenant Colonel; approximately 94 percent are males and 6 percent females; 90 percent of the population is Caucasian and 10 percent of other ethnic background. Over 70 percent of the population holds post graduate degrees and 28 percent only undergraduate level degrees. The population of the class and the study respondents is fairly homogenous and somewhat different than most distance education programs that tend to be predominately female and younger in age. This demographic finding is noted in the section that discusses limitations and delimitations of the study.

The respondent or treatment population consisted of 67 military students or 24 percent of the military student population who responded to both the first and second MCPA survey instrument. The MCPA survey instrument was provided to every member of the Class of 2007 and several steps such as monthly online news updates and personal phone calls were taken to notify and remind students to respond to the survey. The population of the study respondents is demographically representative of the entire population in the Army War College Distance Education Class of 2007

based on rank, gender, ethnic, and educational background. Demographic data pertaining to the treatment group and the control group is depicted in Table 4.1.

Table 4.1 Demographics of Total Population, Treatment and Control Group

Gender of Population	269 Males (94%)	16 Females (6%)		
Gender of Treatment Group	56 Males (84%)	11 Females (16%)		
Gender of Control Group	9 Males (90%)	1 Female (10%)		
Highest Level of Education in Population	79 Bachelor's Degree (28%)	206 Graduate Degree (72%)		
Highest Level of Education Treatment Group	15 Bachelor's Degree (22%)	52 Graduate Degree (78%)		
Highest Level of Education Control Group	3 Bachelor's Degree (30%)	7 Graduate Degree (70%)		
Ethnic Background of Study Population	250 Caucasian (88%)	18 African-American (6%)	10 Asian (4%)	8 Hispanic (3%)
Ethnic Background of Treatment Group	116 Caucasian (89%)	8 African-American (6%)	5 Asian (4%)	1 Hispanic (1%)
Ethnic Background of Control Group	9 Caucasian (90%)	1 African - American (10%)		

The control group consisted of 5 respondents that completed both the pre and post surveys. The results of the control group are interpreted with caution since they are not necessarily a reflection of the entire class. The demographics of the control

group is similar to the entire Class of 2007 Distance Education Program with the exception that the control group has 8 percent less respondents with post graduate degrees than the treatment group. This finding indicates that respondents with graduate level of education had greater success in the first year of the distance education program. This finding was also evident in the increased quality of the respondents' that had graduate level experience in the written and forum requirements.

This study evaluated demographic identifiers such as gender, ethnic group, and level of education to determine whether there was any correlation of these factors to strategic leader cognitive development. Demographic identifiers helped to determine trends and aspects of distance education systems that may be important to future professional development in public administration. Leadership literature posits that individuals having interest in feedback and professional development generally have a higher degree of success at the strategic level of leadership .

The results of the correlation analysis are shown in Table 4.2 and indicate that there was no significant correlation between the demographic variables and strategic leader cognitive development. The lack of significance ($p < .05$) may be attributed to the fact that the respondent population in this study was fairly homogenous. The demographic data suggests that students with graduate level educational experience had greater success in completing the first year of the distance education program in this study. This finding is inferred from the fact that a larger population of respondents with graduate level education successfully completed the first year of the distance education program.

Table 4.2 Correlation Analysis of Demographic Factors

Demographic Factor	Age	Gender	Ethnic Group	Education Level
Pearson Correlation Coefficient	0.68	0.41	0.51	0.35

Course Survey Findings and Analysis

This section presents the results of the Strategic Leadership Course Survey and the MCPA survey instrument. The purpose of the course survey was to assess student understanding of the program materials with regards to the curriculum, online materials, and evaluative requirements. The course survey was posted on 17 May 2005 and closed on 19 September 2005 so that students could respond after they completed the strategic leadership course requirements. The response rate for the Class of 2007, Strategic Leadership course survey was 61 percent based on 386 submissions and 234 responses. The opinions, attitudes, and perceptions of the entire population are reflected in terms of the response rate. The course curriculum, online materials, and the curriculum evaluative requirements were highlighted in the survey report found in Appendix D.

The overall satisfaction level of the curriculum by the students was 89 percent in the five courses that comprise the AWC distance education first year program. One respondent replied that “Despite the challenging course readings, the high quality of the distance education program encouraged me to spend additional time and effort in completing the program requirements.” The quality of the respondent performance

increased throughout the first year of the program which was evident in the improved quality of forum discussions, papers, and grades. One respondent found that “the evaluative requirements for the courses were important in helping to shape his thoughts, understanding, and ability to communicate as a strategic leader”.

The survey found that curriculum themes effectively addressed human dimensions of strategic leadership, international relations, the fundamental nature and evolving character of war, and how conflict shapes strategic thought and military practice. One respondent found that “the high quality of the course material has given me new insights about strategic leader cognitive competencies such as visioning, frame of reference development, and problem management.” Respondents remarked in the surveys, focus groups, and interviews that the distance education program improved their ability to perform visioning, frame of reference management, and problem management skills.

In the distance education curriculum, visioning the future is the capability to formulate and articulate strategic aims and key concepts to shape the future environment. Frame of reference development is defined in the *Army War College Strategic Leadership Primer* as “a knowledge structure of the strategic world or the dynamic representation of significant factors in the strategic environment.” (Shambach 2004). Frame of reference serves as a basis of observation and judgment of the strategic leader’s environment. Problem management is contending with strategic problems and issues that are competing, have manifold implications, and potentially catastrophic outcomes if not resolved carefully.

One respondent's perceptions of the online materials were that "the materials were thoughtfully developed segments well suited to the course objectives." Respondents overwhelmingly found the online materials and networks useful in helping to synthesize and apply leadership principles from program materials. Another respondent remarked that he "gained a greater knowledge and understanding of complex issues by having the opportunity to discuss issues with my peers and by applying the concepts from the course material to my work." The ability of the respondents to apply the program material to their experiences as leaders was significant to their development as strategic leaders.

The evaluated curriculum requirements such as the essay writing requirements and forum discussions helped respondents understand the course material, although some of the respondents found that the writing and forum requirements were challenging. One respondent said that the course was "difficult and challenging but I have to say I learned quite a bit." Respondents described their development as strategic leaders as a result of completing the distance education program that included complex curriculum themes, large quantity of readings, and rigorous writing and forum requirements.

The diverse program materials and requirements were designed to accommodate both audio and visual learning preferences. A few respondents felt there should be some modifications to the curriculum such as "reducing course readings and written requirements." One respondent recommended that the faculty "reduce the amount of reading and add more video lectures." Another respondent indicated that "the online readings were very important to my understanding of the

nature of strategic leadership roles in solving complex issues and conducting long term planning requirements.” These conflicting accounts of respondent experience with the program material are attributed to the differences in respondents’ learning preferences. Some respondents preferred course readings and others preferred audio and visual materials.

Respondents were overwhelmingly satisfied that the course material, forums, and writing requirements contributed to their professional development, demonstrated by a 93 percent satisfaction rate. One respondent stated that he was “putting into practice some of the critical thinking skills presented in the leadership course curriculum.” Another respondent wrote that “the institutional themes of strategic vision, human dimensions of strategic leadership, and ethics best contributed to my development as a strategic leader.”

The majority of respondents in this study had the opportunity to apply the concepts from the distance education program to their experience as leaders. Respondents experienced frame of reference development or increased knowledge as a result of intergovernmental strategic level case studies such as the requirement to develop future national security strategy. One respondent stated that “The distance education program teaches you to see the big picture and apply specific leadership principles.” Another respondent stated “I like moving beyond the requirement and finding solutions to larger issues.” These findings indicated that respondents developed cognitive skills for contending with strategic level issues as a result of completing the distance education program requirements.

The Army War College faculty continuously surveys students and reviews the curriculum materials as a means to evaluate and improve the effectiveness of the distance education program course curriculum. The findings from this study indicate that the combination of informational networks, experiential applications of course materials, and exchange of ideas through the forums contributed to strategic leader cognitive development. One respondent claimed that he was “better equipped to handle the increasing challenges of strategic leader responsibilities as a result of the distance education experience.”

MCPA Survey Findings and Analysis

The following section is a summary of the data results from the Modified Career Path Appreciation (MCPA) Survey Instrument pre and post tests. The first MCPA survey instrument or pretest was available to the students from 19 May to 1 August 2005 at the beginning of the Distance Education Program. The post survey was made available to students between 15 February and 1 May 2006 toward the end of the first year of the distance education program. The treatment group was comprised of the respondents that successfully completed the first year of the distance education program. The control group consists of respondents that did not complete more than one course in the first year of the distance education program.

The method that the students used in responding to the survey changed between the pre and post test responses from responding by mail to responding online. Approximately 80 percent of the 130 students responded to the first survey through a mailing of the survey instead of the online version. Although the

investigator assumed that larger numbers of students would respond to the online survey; pre stamped and preaddressed mailing envelopes were mailed along with the survey to encourage greater participation. Only 50 percent of 67 students responded to the second survey using the online instead of alternate mailing system.

A paired samples t-test procedure was used to compare the first and second MCPA survey instrument responses and to provide a measure of leader cognitive development. The results of the paired samples t-test showed that the means of the post test populations were higher in every phrase set measure in comparing the pre and post test. The differences in the measures were attributed to the effects of the distance education program in leader cognitive development.

Three of the nine phrase set responses were found to have significant differences from pre to post testing as noted with asterisks in Table 4.3. The phrase sets that had significant differences in cognitive development were those phrases that addressed the way that strategic level leaders use information, approach tasks, and achieve results. These findings indicated that the respondent cognitive development was likely a result of the distance education program requirements because respondents had for example, increased their ability to use words, ideas, and theories as tools. The data also indicated that the significant increase in cognitive development of the treatment group occurred over the ten months of the first year of the distance education program. There may, however, be some mitigating factors that contributed to this finding, e.g., other forms of professional development and experiences such as certificate programs.

Table 4.3 Summary of the MCPA Survey Pre and Post Test Treatment Group Responses

Phrase Set Themes (Statements of how leaders approach and use information)	Pre Test Response (MCPA Measure of Leadership)	Post Test Response (MCPA Measure of Leadership)/Significance (2-tailed)
1: Guidance/Frameworks to approach tasks	3.7	4.1/ .128
2: Use of Information and Tools	3.8	4.4 / .006 *
3: Implementation of Rules	4.1	4.3/ .318
4: Ways Leaders Approach Tasks	3.9	4.4 / .010 *
5: Methods Leaders Use in their Approach to Tasks	4.0	4.4/ .099
6: Procedures that Leaders Use in Solving Issues	4.1	4.1/ .368
7: How Leaders Approach Gaps in Knowledge	4.4	4.5/ .797
8: How Leaders Work to Derive Solutions	4.3	4.5/ .545
9: Results of Leader Actions	4.6	5.2 / .005 *
		* denotes significance p<.05

The data from the pre test indicated that the respondents' approach to leadership tasks prior to starting the distance education program were on average, 4.0 or the operational level of leadership. This finding is consistent with the fact that many of the respondents had recently completed operational leadership assignments

that had shorter term and less complex planning requirements. The post test survey indicates an improvement in cognitive leader skills in all phrase sets and the average for the nine phrase sets was 4.4 or closer to the strategic level of leadership. Five of the nine phrase sets increased from levels between 3.7 and 4.6 in the pretest (operational level of leadership) to levels between 4.1 and 5.2 in the post test (strategic level). This finding indicates that the respondents' increased their cognitive capacity while enrolled in the distance education program.

It was not possible in this study to control for outside factors that may have contributed to the respondent cognitive development. The majority of respondents in this study indicated in the interviews that they had completed other professional development opportunities concurrent with the distance education program (as a result of their civilian careers), such as certified public accountant and equal opportunity training. One of the respondents was enrolled in a doctoral program in addition to the distance education program. Some of the respondents were deployed to a war zone that created online access problems and at times limited participation in the online aspects of the program.

Analysis of Control Group Data

Analysis of the control group data in Table 4.5 indicated that there was no significance in the respondent cognitive development as measured by a paired t-test of the pre and post test survey instrument responses. The control group initially consisted of 10 officers selected for the Distance Education program that completed the pre test survey but disenrolled from the distance education program before

completing the first course. Only five of the ten officers responded to the second survey and hence limited analysis of those officers who did not complete the first year of the distance education program but responded to the pre and post survey. The population of the control group was about 2 percent of the 285 students from the Class of 2007 that completed the first year of the distance education program. These results must be interpreted with caution since they are not necessarily a reflection of the entire population of the Class of 2007 Distance Education Program.

Although the data for the control group indicates some cognitive growth, the findings were not significant. Cognitive growth can be attributed to the fact that people develop their thinking skills as a result of the aging process. A finding of no significance indicated that the control group respondents did not experience statistically significant development in cognitive thinking skills that were measured by the MCPA survey instrument.

The data indicated that there was some development of cognitive thinking skills which is most likely attributed to the fact that the control group population continued to mature and was exposed to cognitive thinking experiences outside the distance education program. For example, one of the respondents is a high school teacher who is continuously developing her cognitive skills as a result of her profession. All of the control group members were serving in both military and civilian professions as a result of their status as reserve component officers. The respondents in this study were able to use their experiences from a wide variety of professional experiences.

Table 4.4 Summary of the Control Group MCPA Survey Responses

Phrase Set Themes (Statements of how leaders approach and use information)	Pre Test Response (MCPA Measure of Leadership)	Post Test Response (MCPA Measure of Leadership)/ Significance (2- tailed)
1: Guidance/Frameworks to approach tasks	3.2	3.4/ .866
2: Use of Information and Tools	4.2	5.0 / .495
3: Implementation of Rules	4.0	4.4/ .670
4: Ways Leaders Approach Tasks	3.4	4.6 / .284
5: Methods Leaders Use in their approach to Tasks	4.2	5.0/ .338
6: Procedures that Leaders Use in Solving Issues	4.0	4.8/ .405
7: How Leaders Approach Gaps in Knowledge	4.8	4.8/ .495
8: How Leaders Work to Derive Solutions	3.4	4.2/ .338
9: Results of Leader Actions	4.8	4.8 / .070

The fact that only ten respondents that participated in this study deferred or disenrolled from the distance education program indicates that the study population had greater success in the program than the total population of students. Studies have found that respondents that participate in leader development programs generally have a higher level of commitment and persistence to educational programs (Garvin

1993; McDaniel 2002; Schwartzman 2003). The investigator noted that respondents who completed the first year of the program generally had also completed online administrative and academic records as opposed to those students who deferred or disenrolled from the program. This finding infers that students who successfully pursue professional development opportunities generally make a greater effort to maintain their administrative and academic records.

Patterns and Themes from Qualitative Data

This section presents a summary of the evaluation of the qualitative data from the narrative portion of the MCPA survey instrument, focus groups, individual interviews, course surveys, and the investigator's personal experience as a member of the distance education faculty. The three focus group and ten individual interviews took place during the Distance Education Class of 2007 resident course that was held at the Army War College in Carlisle, Pennsylvania from June 19-26, 2006. The focus groups consisted of 8-10 respondents who volunteered to take part in interviews conducted by the investigator. The focus groups and individual interviews were comprised of questions pertaining to the responses from the MCPA survey instrument and the respondents' experiences in the distance education process. A copy of the questions is located in Appendix A. The focus groups and interviews allowed the investigator to personally discuss with the respondents the importance of access to multiple informational sources (networks), application of the program material to the respondents' leadership experiences (experiential), and online forums (discourse).

Qualitative data from the MCPA survey instrument were derived from the narrative portion of the survey where respondents explained their phrase set selections. In the narrative portion of the post test MCPA survey, respondents were asked to address if their distance education experience had an impact on their professional development as strategic level leaders. The qualitative data from the MCPA surveys were organized and analyzed by examining trends and patterns from the data according to the nine survey phrase sets. A summary of the analysis is found in Table 4.5 and the complete analysis is located in Appendix D. The results of this analysis created a rich and detailed account of respondent cognitive development as a result of their distance education experience.

Table 4.5 Analysis of MCPA Survey Pre and Post Qualitative Data

Phrase Set	Pre-Test Themes	Post-Test Themes
Phrase Set 1: Guidance and Frameworks	Desire for some structure, initiative, creativity & freedom to collaborate and discover	Distance education informational networks and forums contribute to theoretical frameworks
Phrase Set 2: Information and Tools	Desire to multitask, develop new relationships, courses of action, and gain access to information	Discourse with other students helped to develop skills for critical thinking
Phrase Set 3: Rules	Desires guides and ethical standards but notes the need for revision of rules for currency; anticipate 2 nd and 3 rd order effects	Applying rules to various situations requires broad analysis; experiential evaluation promotes understanding and effectiveness of rules
Phrase Set 4: Approach	Evaluating a broad spectrum of systems to determine efficiencies and effective methods; apply new knowledge	Acquired broader base of knowledge through informational networks that promote different ways to strategically examine issues

Phrase Set 5: Method	Analyze and visualize new approaches; create picture of problem; ID underlying issues	Determine how parts relate to the whole; examine procedures and experiment by applying concepts to experience
Phrase Set 6: Procedure	Works with established timelines and processes; experiment & Assess Risk	Appreciation of complexity; desire for creativity and flexibility; need to facilitate transformation
Phrase Set 7: Gaps	Gaps are opportunities to develop skills and learning as a result of new information and knowledge	Gaps facilitate thinking, awareness; opportunity to shape events & promote creative thinking through learning and experience
Phrase Set 8: Solutions	Options & alternatives support creative problem solving; evaluate experiences	Evaluation of multiple solutions & ability to see unintended consequences; anticipate future events
Phrase Set 9: Results	Leaders contend with conflicting solutions and evolving situations; leaders need options	Need for contingency plans to adapt for the future and multiple ways to present information to promote understanding

The patterns of data indicated that informational networks, discourse in the forums, and experiential application of the distance education curriculum materials were instrumental to increasing respondent cognitive development. For example, one respondent found that “experience in working with multiple forms of technology and communication aided me in organizing and addressing complex issues such as examining the diplomatic, informational, military and economic aspects of national security.” Respondents found that the combination of accessing informational networks, the ability to discuss the findings with their peers, and then apply the knowledge to a case study or their personal experience was a powerful way to increase their cognitive skills.

Quantitative and qualitative data indicated that respondents gained confidence in the use of informational networks and theories as tools for analysis of strategic level planning. One respondent claimed that “finding linkages and connections between ideas and theories through the course readings and writing requirements is rewarding and likely to lead to better and more comprehensive solutions.” Another respondent found that “the distance education program materials provided me with the opportunity to work within a framework but also the freedom to seek additional sources and complete course requirements at my own pace.”

Informational networks allowed students to explore broad topics synchronously that encouraged them to visualize strategic issues and relationships. Respondents indicated that the distance education program enabled them to “consider multiple perspectives such as conflict and change in different mediums such as readings, forum interaction, and simulations.” This finding follows studies that found distance education group projects may take longer to come to consensus in online classrooms in comparison to face-to-face classrooms, but distance education students are able to redirect themselves without outside intervention.

The distance education program readings, writing, and forum requirements encouraged creative thinking and application of strategic leader cognitive attributes such as problem management and visioning. One respondent explained that “the distance education program writing requirements encouraged me to synthesize many sources of information which helped improve my skills of association.” Respondents expressed increased confidence in using and applying information and knowledge to formulate strategy and policy as a result of participating in online forums. Another

respondent found that “the distance education forums developed his critical thinking skills as a result of having to synthesize and discuss the course readings.”

Respondents also found they had a broader base of knowledge or cognitive ability for strategic level analysis as a result of participating in the forum discussions. For example, students were required in the national security policy and strategy course to apply concepts relating to the use of diplomatic, informational, military, and economic factors in addressing national security issues such as the strategic planning for Operation Iraqi Freedom. One respondent stated in the MCPA survey instrument narrative section that “I like to examine broad topic areas and the distance education program permits exploration of strategic topics because of the access to multiple informational networks.” Case studies encouraged respondents to apply higher level cognitive skills to evaluate interagency policy roles in strategic level security assessments and decision making.

Qualitative data from the first phrase set of the MCPA survey indicated that respondents used multiple informational networks for strategic level decision making and policy development. One respondent indicated that he “preferred working with frameworks that provided some structure but allow flexibility in considering new environmental and organizational dynamics.” It is important for leaders at the strategic level to span organizational boundaries in order to gain more comprehensive outlooks on issues. Qualitative responses in the data further explained that the distance education program provides access to extensive course readings, websites, and forums in working through complex course requirements. A respondent indicated that she “liked having the opportunity to consider many different sources of

information to consider various solutions since strategic level issues are constantly changing.” Another respondent found that he enjoyed “having some structure in the course curriculum such as the lesson objectives and course requirements that served as a guide but allowed for creativity and discovery.”

The distance education program emphasized the need for strategic leaders to develop creative and critical thinking skills in contending with complexity and long term planning requirements. The variety of instructional materials such as course videos and interactive segments were important so that each student had the opportunity to learn to the greatest extent possible. Interestingly, some distance education students were much better at completing forum requirements that involved threaded discussions than completing the written papers. Informational networks and forum discussions about strategic leadership issues such as visioning provided what one respondent said was “latitude for discovering new ways of thinking and problem solving.”

The Army War College distance education program encouraged students to develop strategic level thinking skills such as how to develop relationships among organizations to achieve national security objectives. Course readings included case studies and exercises where the respondents had the opportunity to examine and analyze reports regarding ethical conduct in time of war. Students were required to read a variety of reports and to identify appropriate skills and competencies such as ethical reasoning needed to prevent detainee abuses at detention facilities like Abu Ghraib. One respondent found that the application of curriculum theoretical readings

to case studies to be “extremely beneficial in understanding the context of strategic leader roles and responsibilities.”

The course readings, forums, and writing requirements on ethics helped respondents develop strategic leader cognitive thinking skills. In the writing and forum requirements, respondents were required to develop and defend strategic level policies such as detainee interrogation at a national and international level.

Respondents indicated that “the forums provided a means to work issues collaboratively that resulted in greater understanding of complex issues and cases.”

Some of the forums allowed students to formulate and test ideas that they presented in the written requirements. One respondent remarked that “forum discussions broadened my perspectives of issues because I could draw on the experiences of several professionals who took part in the forum discussions.” In this study it was not unusual to have forum participants deployed to Iraq, Afghanistan, Korea, and Germany checking into forums from remote sites.

The distance education program forum discussions helped students understand the magnitude of their responsibilities as a strategic level leader through sharing their experiences with their peers. One respondent remarked that “the forums encouraged diverse dialog and consensus that helped me understand and develop interrelationships in the course material.” Forum discourse provided respondents opportunities to formulate and test ideas with each other and faculty members that were useful in developing a frame of reference for observation and judgment. Some respondents expressed the importance of the forums to feeling connected to other students and helped them “develop the ability to recognize alternate points of view.”

Summary of the Qualitative Data

This study includes qualitative data from focus groups, individual interviews, and the respondents' written comments from the MCPA survey instrument explaining their responses to the phrase sets. Each of the data sources provides some unique perspectives about the respondents' experience with distance education that are summarized in the following table. The following section describes the highlights from the focus groups, individual interviews, and comments from the MCPA survey instrument data sources.

The focus group data themes indicated that forums helped respondents' build confidence with course material understanding because of the exchange of information with peers and faculty members. Respondents found that this distance education programs enhanced their online connectivity with informational and personal networks so they were not learning completely on their own. They sometimes experienced challenges with accessing online materials and found that they needed clarification on the meaning of some of the curriculum material. Respondents found that faculty feedback was important to the learning process in helping clarify and reinforce program writing requirements.

Data themes from the individual interviews indicated that the online forums helped respondents' build knowledge and understanding through synthesis of informational sources. They found that the writing requirements promoted understanding of curriculum themes as a result of synthesizing a variety of sources and being able to apply the material to their personal experiences. Most of the

respondents found the distance education program to be challenging in that it required well developed analytical skills of complex theories from the course readings.

The MCPA survey instrument narrative data indicated that respondents found that they developed knowledge in the distance education program as a result of interacting with peers and faculty members. The curriculum required development of critical thinking skills, the ability to synthesize a large volume of readings, and apply this knowledge to their personal experience. The broad spectrum of course curriculum provided the respondents an in depth perspective of global issues and events such as how the military contends with diplomatic, informational, and economic factors. Distance education curriculum requirements gave respondents the opportunity to examine strategic level issues such as programming resources for national security.

The data from the focus group, individual interviews, and MCPA narrative sources of data helped to compliment the quantitative data in the triangulation of the data. The qualitative data indicates a pattern of respondent cognitive development as a result of access to informational sources, discourse in the forums, and immediate application of the course material to their personal experience. This data also helped to explain the significance in the quantitative data such as the way and approach leaders use to access information as well as how they derive results. The following section provides additional insights about the crosswalk or triangulation of the multiple data sources and the study findings as well as the recommendations for future research.

Triangulation of Data

The investigator collated the quantitative and qualitative data to determine the overall trends and patterns from the surveys, focus group, and interview responses. Three main trends emerged that indicated respondents found that 1) distance education informational networks, 2) forum discussions, and 3) experiential application of the course material significantly contributed to their cognitive development. For example, respondents' evaluated and synthesized a large number of curriculum and information sources in the forums and written requirements. The findings from this study are consistent with previous studies that indicate academically rigorous distance education programs are effective in developing leaders cognitively .

The findings from the data extend Jaques' and Zaccaro's theories about leader cognitive development by addressing how distance education systems contribute to strategic leader cognitive development. Previous studies and theories only focused on traditional educational programs for leader development because distance education has only recently become a more common form of professional development. Online informational networks, forum discussions, and experiential opportunities provide distance education program students new ways to acquire and apply knowledge.

The interview data indicated that respondents found that the distance education programs developed their ability to sort through large quantities of information to develop their knowledge and understanding of complex information. One respondent found that "distance education contributed to my ability to contend with complexity through informational networks and gives me a long term

perspective of my roles and responsibilities as a strategic leader.” This finding is especially important because distance education program graduates are generally assigned to strategic level leadership positions that require them to contend with complex and diverse information sources for long term planning.

The data indicated that the respondents found that distance education materials and online technological processes expanded their ability to perform complex thinking skills. Respondents found that the distance education program encouraged them to think more about the use of technology in their future roles and responsibilities (in shaping long term visioning and policy implementation). One respondent found that he “needed to develop understanding of informational sources and technology beyond the curriculum materials.”

Table 4.6 illustrates the relationship of the quantitative and qualitative data to the increase in cognitive development of the three phrase sets that had significant statistical results. Interestingly, the quantitative changes in the phrase sets are similar to the changes in the qualitative data. For example, respondents found that they were more comfortable in using information such as networks as tools. Respondents also found that they could transcend tasks through use of information and personal networks and they found a greater acceptance for conflict and nonpermanent solutions. The ability of the respondents’ to apply the knowledge from their distance education curriculum to their personal experience helped to reinforce their understanding of strategic leader roles and responsibilities. For example, one respondent found that “applying the strategic leadership competencies from the

curriculum materials to my profession gave me greater insights about the difficulties of strategic level planning”.

Table 4.6 Summary of Triangulated Quantitative and Qualitative Data from Significant MCPA Phrase Sets, Individual, and Focus Group Interviews

MCPA Phrase Set & Theme	Pre Test Response	Post Test Response	Synopsized Qualitative Responses from Respondent Focus Groups and Interviews
Phrase Set 2: Ways Leaders Use Information	MCPA Survey Measure 3.8: Operational Level of Leadership that compares merits of options	MCPA Survey Measure 4.4: Operational Level of Leadership that uses words, ideas and theories as tools	Distance education writing requirements and forums facilitate synthesis of complex material
Phrase Set 4: Leaders Approach to Tasks	MCPA Survey Measure 3.9: Operational Level of Leadership	MCPA Survey Measure 4.4: Operational Level of Leaders that transcends tasks and relationships between tasks	Distance Education encourages exploration: Expands knowledge and networks
Phrase Set 9: Leaders Achieving Solutions	MCPA Survey Measure: 4.6 Operational Level : Develop alternative approaches	MCPA Survey Measure: 5.2: Strategic Level of Leadership that accepts conflict and nonpermanent solutions	Distance Education promotes creative and critical thinking. Alternate courses of action are considered.

Phrase Set 2 was a measure of the way that respondents use informational networks. Respondents became increasingly confident in using words, ideas, and theories as tools. This was illustrated in one respondent remark that “the distance education writing requirements and forums facilitated greater understanding of the complex course readings.”

Phrase Set 4 was a measure of the way leaders approach tasks and one respondent found he could “transcend the relationships between tasks in order to gain a more holistic approach to planning and analysis.” Strategic level leaders need a holistic and comprehensive approach in the way that they think about tasks in order to contend with broad policy issues. An example is using diplomatic, informational, economic, and military means in developing national security strategy.

Phrase Set 9 was a measure of how leaders achieve solutions. The data indicated that respondents increased their capacity for accepting conflicting and nonpermanent solutions. A respondent reported that “there is rarely one view which is universally accepted and the distance education program encourages exploration of issues through informational networks, forum discussions, and application to personal experience.” The application of new knowledge to their personal experiences helped the respondents build skills to contend with increasing complexity and long term planning requirements.

The qualitative patterns of responses in this study indicated that respondents found informational networks, forum discussions, and experiential learning facilitated their cognitive development. The forum discussions and informational networks contributed to the synthesis of complex theories because respondents had the opportunity to discuss and compare their ideas with subject matter experts, their peers, and faculty. One respondent remarked that “the distance education program promotes creative and critical thinking in addressing course requirements that links the course readings with ideas presented in the forums and my personal experience.”

Another respondent remarked that “the diversity of course materials and learning methodologies allowed me to try new ways of evaluating and analyzing issues.”

A second example of the data triangulation in this study can be found in the Phrase Set 2 responses that illustrated respondents used multiple sources of information as a result of their distance education experiences. The pre test survey response indicated that only 38 percent of students desired to work at a strategic level, most likely because the military organization is highly structured and hierarchical. The post survey indicated that 64 percent of the respondents desired to work at the strategic level and used multiple sources of information for planning and decision making. Qualitative responses in the interviews and focus groups indicated that respondents gained confidence in their leadership cognitive attributes. One respondent claimed that “the distance education program helped me to ratify my leadership style and situational understanding.” This ratification of respondent leadership was also evident in their retention in the program.

In summary, students that made the effort to participate in this study had a higher rate of successful completion. More than 85 percent of the population that responded to both the pre and post test MCPA survey instrument completed the first year of the distance education program. The attrition rate of the Class of 2007 was over 30 percent in the first year of the program; the enrollment fell from 425 to less than 300 students. Leadership theory that posits leaders who take a positive and proactive approach to performance feedback have a higher level of cognitive development.

The qualitative data from the survey instruments, focus groups and individual interviews indicated growth in respondents' cognitive skills and leadership competencies. Multidimensional online mediums of course readings, writing requirements, and online forums assisted respondents in developing cognitive skills to synthesize complex material. One student noted that he "developed skills of association so that he was able to consider complex theories and evaluate second and third order effects of his decisions." Another respondent shared that he "appreciated the opportunity to consider and reflect upon the nature of strategic leadership" and third respondent found that "I could relate better with strategic level issues and discussions as a result of course readings and discussions." The combination of acquiring new knowledge through multiple informational networks and immediately applying the knowledge to personal experience illustrated the effectiveness of distance education programs in strategic leader cognitive development.

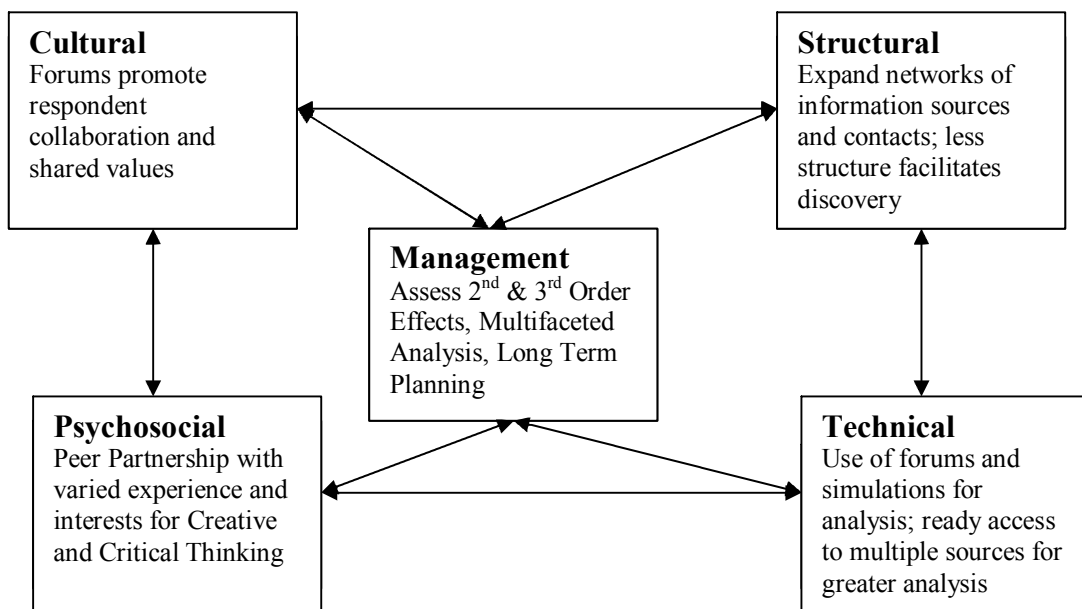
Analysis of Data Using the Organizational Subsystems Model

Distance education programs are comprised of organizational subsystems such as cultural, psychosocial, structural, technical, and management networks. This section illustrates how focus group and individual interview data were analyzed using the model of organizational subsystems. These subsystems provide some insights about the significance of each of the individual subsystems as well as the interactions between the subsystems.

Figure 4.1 illustrates the relationships between organizational systems in the cognitive development process. The findings from this study indicated a link

between the cultural values of respondent collaboration and motivation to complete course requirements with their feelings or psychosocial attributes of support by their peers and faculty members. One respondent commented that “the distance education program teaches you how a variety of tasks are related to each other.” Organizational subsystems are important to the adult education process of sharing personal examples of how leaders apply new knowledge to their personal experiences.

Figure 4.1 A Model of Organizational Subsystems that Affect Strategic Leader Cognitive Development through Distance Education



Using multidimensional frameworks for analysis helps to illustrate overlaps and gaps in knowledge of leader cognitive development. Figure 4.1 illustrated that there are integrating factors between each of the subsystems illustrated with arrows to show interactions. For example, both cultural and psychosocial systems evaluated the way respondents behaved and felt in participating in distance education programs.

One respondent volunteered that “feedback and interaction with classmates and faculty was instrumental to my understanding of course material and concepts.”

Respondents consistently expressed their desire for opportunities to interact with fellow students and faculty members at the beginning and throughout distance education programs. In most cases, respondents sought feedback and guidance in completing course requirements through email inquiries and phone calls. For example, the investigator had over 50 inquiries from respondents pertaining to course requirements. One respondent stated in the course survey that he found “a greater level of competency with the technical aspects of the program such as accessing research data bases through discussions with faculty and fellow students.”

Cultural elements include physical, behavioral, language, and values. In this study, respondents contended with a culture that has a high degree of academic rigor because of the requirements of a master’s degree graduate level program. The master’s degree that is awarded upon completion of the entire distance education program serves as a tribute to shared values and high motivation of the students in completing strategic level educational requirements. One respondent found that the distance education graduate program “provides informational and decision making tools for increasing my ability to contend with a wide spectrum of strategic leadership issues.”

Despite the geographical separation between students and faculty in the distance education programs, the respondents found that “the distance education provides opportunities to gain insights from peers and faculty as well as the ability to focus thought and anticipate future requirements.” The psychosocial and behavioral

aspects of the distance educational environment are somewhat constrained because of the limited communication and interaction of students and faculty. However, many respondents found that the communications networks allowed them to be creative in expressing their ideas, e.g., sharing links to favorite sources and references for course requirements.

Learning is a social activity that is strengthened with carefully facilitated instruction in which the faculty design primarily written communication for feedback and encouragement to online students. Faculty and students are partners in learning. Effective communication is crucial for successful distance education programs. The combination of course surveys and forum feedback sessions allowed respondents the opportunity to identify issues related to their learning experiences. One respondent remarked that “most faculty members were responsive and available to work issues and support student needs.” Distance education literature indicates that responsive and timely faculty feedback contributes to student cognitive development through distance education (McDaniel 2002).

Strategic leader studies indicate that leaders develop unique and complex language because of the need for boundary spanning requirements such as interagency and international relationships. Unique online language skills are often a result of relationships and access to informational sources. For example, strategic leaders contend with a wide range of organizations and relationships in their roles. Educational systems help to develop effective use of unique acronyms and language skills (Schwartzman 2003). One respondent confirmed in an interview that “distance

education programs helped me develop effective communications skills such as the way I articulate my vision and organizational mission.”

Psychosocial subsystems include personality, attitudes, learning, motivation, communication, and group dynamics. In distance education, course value is one of the most important predictors of the way respondents perceive the quality of instruction. The strategic leadership course survey report found that respondents had high value for the Army War College distance education program. Value is especially important for adult learners that are eager to apply what they learn to their experience. One respondent found “the quality of the AWC distance education to be excellent and relevant to her experience as a leader.” Trends in the data indicated that respondents were applying the new knowledge about strategic leadership to their professional and personal experiences. These findings helped validate some of the course curriculum such as the continued need for strategic planning, negotiations, and consensus building.

Studies have found that faculty members that demand high quality work receive higher evaluations for their teaching and are thought to be most effective (Moore and Anderson 2003). It is important for faculty members to remain visible to students by participating in discussions, involving everyone in the learning activities, and providing feedback. The quality of communication between faculty and students and student participation in the threaded forum discussions were important to the perceptions and attitudes of the distance education learning process. For example, forum participation either increased or decreased as a result of faculty feedback, prompting students to consider additional ideas, questions, or controversial topics.

In one case, forum participants provided few entries about how leaders contend with ethical issues until the facilitator questioned the participants about applying the course readings to their personal experience. For example, respondents were required to apply ethical principles to case studies pertaining to how soldiers should treat detainees in time of war. This technique provided a way for the forum participants to relate what they were learning about ethics to their professional experience. The exercises of having students relate the topic of ethics to their personal experience resulted in a rich assessment of how to contend with various ethical issues. One respondent found this learning technique effective because “I could apply the ethical concepts to what I knew about the case and gave me a new perspective from a strategic point of view.”

In the forum discussions, respondents were expected to make daily entries which required synthesizing course readings and providing examples of application of the material. One respondent found that “the readings on strategic leadership competencies gave me insights about the roles and demands of strategic level leaders. Faculty evaluation of student participation in forums contributed to the facilitation of good group dynamics and a positive attitude for learning because students found that there were incentives and consequences associated with participation. For example, students that presented different views of an issue in their online discussions from a variety of sources were generally given higher evaluations than students that present only one side of an issue. One student found that forums “encouraged me to interact with my peers and the dialogue helped to confirm what I thought about the readings.” Online discussions tend to be more scholarly than face-to-face discussions because

respondents have to formalize their thoughts in writing and document their sources that become a permanent entry. Classroom seminars tend to discuss various issues without citing sources to the same degree that is accomplished online. One student remarked that “I could not say anything that came to mind when making forum entries because I knew my peers and faculty members would scrutinize the entries.”

Technology subsystems include the product design, production, distribution, support, and service recovery of distance education systems. On line course materials and methodologies such as forums or threaded discussions provide what one respondent said were “new ways of learning through technology.” Forum discussions can be viewed by a large number of the student population and faculty so students are generally more thoughtful about how they present their ideas in a forum. Online forums typically have a formal record of proceedings in contrast to seminar discussions which are more of a facilitated discussion of ideas. Forum and seminar discussions are becoming increasingly sophisticated as faculty members gain experience with various methods of questioning encouraging students from many different locations to participate in discussions.

Students have recently acquired the ability to download curriculum materials to personal data devices that allow them to access and collaborate with their peers without having to be tied to a computer. Downloading curriculum materials allowed some respondents to share curriculum material with other organizations and individuals that do not have online access to the program. Expanding the application of the program curriculum to groups outside the Army War College may help to develop inter-organizational technological and informational networks.

Structural subsystems in distance education include formalization, standardization, specialization, authority, policies, and procedures. The distance education program evaluated in this study is fairly regimented, and specialized because of the nature of higher education accreditation. For example, respondents in this program had to complete essay writing requirements that were similar to other graduate level programs to ensure evaluation of their learning and comprehension. The regimentation and structural requirements in distance education program courses and lessons seemed to provide students assurance in an online environment that is less certain than residential learning. One respondent remarked that she “liked having some structure in the course curriculum but the latitude to research and discover new concepts.”

Respondents found that there is a high degree of comfort with the distance education program structure because each course had a standardized format of course directives and lesson plans. Faculty members provided students feedback on every written and forum requirement in the program in the form of a numbered grade and narrative comments. The evaluated requirements gave students specific guidance as well as official notification that they were either meeting or failing to meet program objectives.

Timely feedback and frequent communication is especially important in distance education to help compensate for the lack of one-to-one communication. In this graduate level program, students were expected to contact faculty members if they needed clarification in completing course requirements. Students that took the initiative to seek clarification and communication with faculty members generally did

well in completing the course requirements. One student responded to the survey in the following way, “The distance education program faculty provided me with timely feedback and the opportunity to work within a set framework while allowing freedom to complete tasks as I see fit.” In the cases where deficiencies were identified by course evaluators, timely feedback allowed respondents to make corrections that contributed to the successful completion of course requirements.

Respondents that had a record of unsatisfactory performance were assigned faculty mentors to provide additional feedback. Mentors provided dialogue and specific feedback on written requirements beyond what the evaluators provide in their assessments that in most cases contributed to successful course completion. One respondent remarked that “timely faculty feedback and mentoring support were instrumental to my success in the distance education program.”

Distance education programs, policies, and procedures generally mirror face-to-face education programs since both programs share the same accreditation standards. Well developed policies and procedures are important in developing quality distance education programs because online communications often takes the place of face-to-face communications. Respondents had several avenues in the distance education program to ask questions of administrative personnel through email, phone contact, and some personal visits. One respondent remarked that he “liked having the ability to use a variety of means to communicate my ideas and concerns.” Personal contacts seem to help reinforce respondent academic performance in the distance education program because respondents developed a

greater capacity for visualizing and understanding complex issues through personal dialogue.

Managerial subsystems include the way organizations design, communicate, and evaluate distance education program. Distance education programs have unique curriculum designs that are focused on allowing students to navigate complex course material with limited interaction between faculty and peers. Both quantitative and qualitative data from this study indicated the importance of effective communication and evaluation in respondent completion of program requirements.

Some respondents seemed to perform better in the distance education program based on their educational background and motivation. Respondents with graduate level education had a higher completion rate than those that had no graduate level educational experience. Over 85 percent of the respondents from the second survey hold a graduate level degree and only 15 percent hold only an undergraduate degree. The educational status of the respondent population varies significantly from the general population of the Class of 2007 at the beginning of the year and the end (30 percent with undergraduate degrees and 70 percent with graduate degrees).

In summary, the organizational subsystems helped to identify factors in the distance education program that significantly contributed to development of strategic leader cognitive competencies. The strong culture (shared beliefs and values) in distance education programs is evident in the respondent professionalism and persistence in completing the program requirements. Psychosocial subsystems such as student perceptions and beliefs are being transformed through distance education as a result of forum and faculty communications. The excellent group dynamics and

motivation of the students to learn and apply strategic leadership attributes is contributing to their effectiveness and reinforcing the value of professional development. One student stated in the survey that “the distance education process exposes me to a number of evocative thinkers and helps to ratify or amend my leadership style and situational understanding.” The structural systems provided a framework for respondents to transcend or create a more holistic approach to visioning and problem management as a result of drawing from online course materials and forum discussions. Technical and management subsystems allowed leaders to use technical skills such as monitoring informational sources and participating in simulations exercises that test their theories. One student found that “distance education systems teach that complex issues are dynamic and managing change is as important as managing problems.” The organizational subsystems framework was instrumental in organizing the data to evaluate patterns and to show linkages between the subsystems that contributed to the increased ability of leaders to contend with complexity and long term planning.

Conclusion

Data in this study were analyzed through a mixed methods approach of quantitative and qualitative data that found distance education networks, experiential opportunities, and forum discourse significantly contribute to leader cognitive development. Quantitative data from the MCPA survey was triangulated with individual and focus group interviews. The qualitative data provided some additional insights about the transformational nature of cultural, psychosocial, structural,

technical, and management subsystems in strategic leader cognitive development. The organizational subsystems framework illustrated the importance of relationships between the subsystems that were not addressed in the quantitative portion of the MCPA survey instrument.

This study found that strategic leaders are able to significantly develop cognitive thinking and long term planning skills with access to academically rigorous distance education systems. Change in the strategic leader environment requires that leaders continuously monitor and develop informational networks through educational experiences. Distance education programs enable strategic leaders to monitor change through advanced technological systems and to apply new theories and tools immediately to the issues and challenges that are part of their evolving organizational roles and missions. Respondents indicated greater comfort with their cognitive skills as a result of being required to develop and apply strategic level competencies such as visioning, negotiating, and boundary spanning in their academic and professional experiences.

The study data confirms Jaques' theory that strategic level leaders require higher cognitive and long term thinking skills to contend with complexity and long term planning. The data in this study indicates that respondents significantly increased their cognitive thinking skills through a academically rigorous distance education program. This finding can be attributed to the fact that the distance education program exposed respondents to complex material and required them to consider many implications in decision making.

This study also confirmed that better educated students are generally better prepared and more highly motivated to complete the distance education experience. Seventy percent of the respondents that had masters and doctoral degrees were found to be more successful in their pursuit of professional development opportunities such as keeping current with leadership literature, networks, and practices. Higher level education and competency with adult learning skills is important in distance education programs that require students to perform most of the learning on their own.

Respondents found that “feedback in course requirements helped to reinforce my understanding and confidence in learning through distance education systems.” Over 70 percent of respondents expressed their increased comfort with complexity and long term planning skills as a result of their distance education experience. One respondent found that “the distance education program emphasized looking at issues from different perspectives and focused on flexibility and change.”

In summary, distance education programs tend to be highly collaborative and effective because of the interrelationships of organizational cultural, psychosocial, structural, technical, and management subsystems. Effective communication, feedback, analysis, and evaluation systems promote discourse and experiential learning. The combination of student feedback through the MCPA survey instrument and course surveys provided some rich data concerning the importance and value of networks, experiential learning opportunities, and discourse in forums in the cognitive development of strategic leaders.

Chapter 5 Conclusions and Recommendations

The purpose of this chapter is to summarize the conclusions and recommendations for future studies. The first part of this chapter presents the contributions to leadership theory and practice in the field of Public Administration. The final part presents some and recommendations for future research and concluding remarks.

The original goals of this study to evaluate leader cognitive development through distance education were accomplished. The investigator triangulated quantitative and qualitative data and found that completion of the first year of the distance education program significantly contributes to leader cognitive development. The significant findings in the data indicated that respondents increased their cognitive development through organizational subsystems (networks), application of their new knowledge to experience (experiential), and communication through online forums (discourse).

This study advances leadership theory and practices concerning distance education as these relatively new programs are just beginning to be assessed. The mixed methods approach used in this study allowed the investigator to analyze a wide range of individual and organizational systems critical to the cognitive development of strategic leaders. This study indicates that there are a number of organizational and individual factors that contribute to leader cognitive development through distance education. Some of these factors were the way that respondents used the online networks, applied the curriculum to their experience, and used discourse in the online forums to reinforce their understanding of the program material.

The previous chapter illustrated that distance education programs provide leaders access to large networks of readings and informational sources that expanded the respondents' conceptual frameworks. Respondents learned how to critically evaluate informational networks and sources as well apply new knowledge to strategic level issues as a result of complex course requirements. Online forums enhanced leader cognitive and long term planning skills through collaboration as leaders learned from each others' experiences. Respondents used the online forums to build and reinforce their knowledge and understanding of strategic leadership principles such as formulating national security policies. Forums and the program writing requirements promote critical thinking skills such as assessing and critiquing current and former strategic level leaders such as the Secretary of State and the Secretary of Defense. When leaders apply the distance education informational networks to their experience they reinforce and build their cognitive capacity. This experiential learning process also provides feedback to the respondents in the form of additional knowledge that increases strategic leader cognitive skills and competencies. It may also help compensate for the shortfall of interpersonal experiences in distance education.

Contributions of the Study to Leadership Theory and Practice

There are several contributions to leadership theories and practice. The first contribution is that distance education programs contribute to strategic leader cognitive development. Previous leadership theories and practices related to leader cognitive development have been limited to the study of resident educational

programs. This study extends Jaques' Stratified Systems Theory and Zacarro's Strategic Leader Model by adding distance education as one of the ways that strategic leaders develop increased levels of cognitive capacity.

Jaques' Stratified Systems Theory and Zacarro's Strategic Leader Model explain that leader cognitive development is associated with individual attributes, organizational structure, and processes. Jaques further differentiates leadership cognitive skills with the strategic, operational, and production organizational levels. Table 5.1 illustrates that the strategic level is the highest level of the organizational structure (e.g. a CEO or agency director). The organizational level is the operational or middle management level (division manager) and the production level leader works with individuals to accomplish tasks and solve problems.

The three organizational levels of leadership help distinguish strategic leader cognitive attributes needed to perform roles and responsibilities in public organizations. This study was limited to assessing cognitive development of strategic level leaders through distance education however; the study has implications for the operational and production levels since the three levels interact in most public organizations. It is important to consider the interaction and distinction between the strategic, operational, and production levels since strategic leaders have oversight for all levels of organizational leadership. Distance education programs could support leader development at all three levels by extending program readings and forum discussions to entry (production) and mid career (operational) education programs. Expanding the program materials to multiple levels in an organizational structure will help facilitate understanding of the mission and objectives.

Table 5.1 Revised Institutional Stratum of Jaques' Leadership Responsibility and Domain Based on Contemporary Organizational Structure

Stratum & Long Term Planning Horizon	Leadership Requirements	Examples of Leaders
Strategic Level +10 Years	Creates and Applies Policy Directs Complex Systems; Monitors the external environment	Department Secretary Federal Agency Directors
Operational Level 5-10 Years	Allocates resources and Executes Policies	Field Agency or Organizational Director
Production Level < 5 Years	Directs work and solves problems	Shift Leader/ First Line Supervisor

The significant increase in strategic leader cognitive thinking skills was attributed in this study to the way distance education programs expand leader informational networks through readings, online collaboration, discourse in online forums, and experiential learning processes (Passmore 1988; Moore 2003). These findings may be applicable for the organizational and production levels of leadership because most leaders contend with multiple informational networks. The data found that online educational networks and forums increased the respondents' ability to exchange information and experiences that had implications for all levels of leadership.

Zacarro's strategic leader model associates leader characteristics with competencies and performance requirements. Findings from the study show that the distance education program increases leadership competencies and performance in the way that respondents are encouraged to think about the second and third order effects of strategic level decisions. For example, respondents found that exposure to new technologies in distance education encouraged them to think about future uses of

technology as well as consideration of the second and third order effects of leader decision making roles. One respondent found that he was able to “increase my confidence in technological systems as a result of completing the distance education program requirements”.

Table 5.2 Contributions of Distance Education to Strategic Leader Characteristics and Performance (Adapted from Zacarro’s Model, 2001).

Development of Strategic Leader Characteristics through Distance Education	Development of Strategic Leader Performance through Distance Education
Expanding knowledge and capacity through informational networks	Encourages consideration of second and third order effects of decisions
Threaded discussions (forums) promote discourse and critical thinking	Promotes long term thinking & planning
Writing requirements are designed to require students to synthesize complex material	Broadens leader perspective to consider global issues

Respondents overwhelmingly found that the distance education course material contributed to their cognitive development through the broad spectrum of readings that contribute to understanding complex subject matter. The strategic leader course survey and respondent interviews highlighted how the wide range of curriculum materials, activities such as the forums, and evaluative requirements significantly contributed to the development of strategic leader cognitive skills such as visioning. Respondents are responsible for developing organizational visions that provide a linkage with the mission, resource allocation, and assessment standards. For example, strategic level Army Commanders develop a vision when they take over

as leader of organizations to inform personnel what they expect to accomplish during their tenure.

Distance education evaluative requirements were designed to encourage respondents to seek out and synthesize multiple sources of information. The respondent dialogue and synthesis of the course material encouraged reflection and communication of complex ideas. These skills support Zacarro's theory that strategic leaders need to develop the capacity to perform strategic level roles such as formulating policy and strategic planning.

The second contribution is that distance education promotes leader cognitive development of organizational cultural, psychosocial, structural, technical, and management subsystems or networks. Culture, psychosocial, structural, technical, and management factors found in the population of respondents such as their commitment, discipline, and respect for each other in completing and sharing insights from course requirements. Distance education networks are sets of effective organizational subsystems such as the technological skills and structural skills to navigate through online course curriculum material and forums.

Distance education networks provided respondents in this study access to extensive informational sources and forums that facilitated greater cognitive capacity and application of complex, strategic level concepts. As a result of completing the distance education program, respondents were better able to think about long term and implications of their decisions. For example, respondents completed a program requirement in which they identified leadership attributes that were instrumental in contending with the global strategic environment in the year 2010.

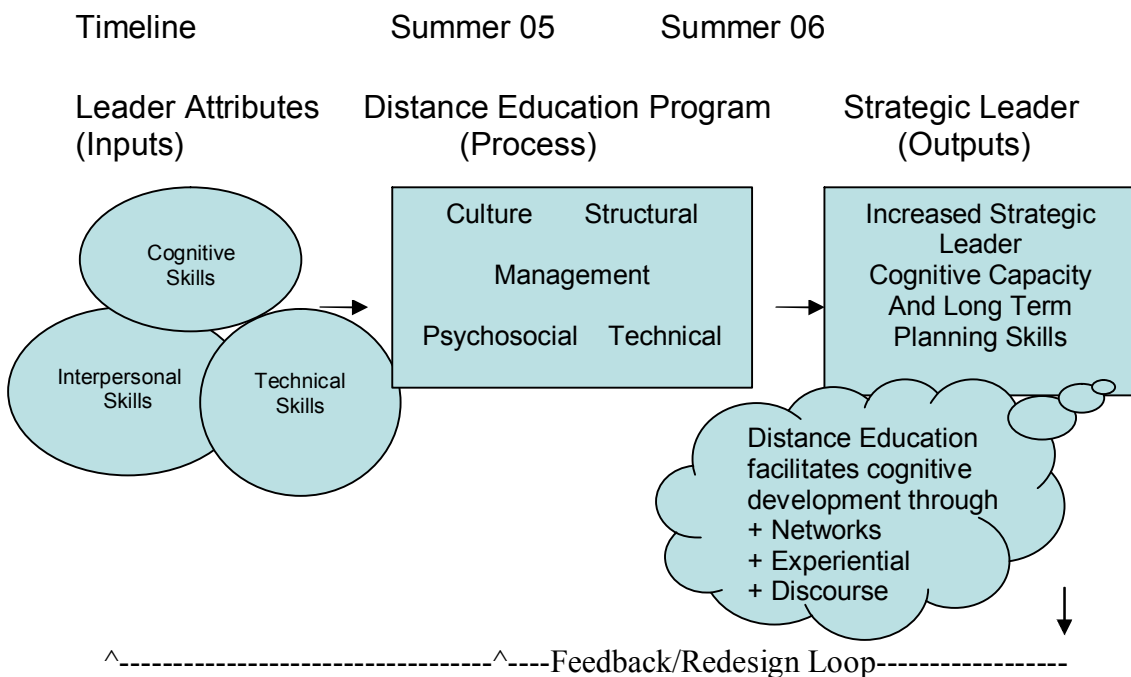
Systematic aspects of strategic leader cognitive development resulted from internal and external environmental change e.g. technological developments. The organizational subsystems help to explain increased leader cognitive skills as a result of interactions from cultural, psychosocial, structural, technical, and management networks. For example, respondents indicated that distance education program helped them to think critically about how institutional policies (structure) and networks (cultures) contribute to national and global strategies. One respondent found that “evaluating strategic level policies such as the failure to deploy sufficient numbers of military units to suppress insurgent attacks in Iraq is important for future strategic decision making.”

Figure 5.1 illustrates the process or system of leader cognitive development. Leadership attributes are categorized as cognitive, technical, and interpersonal attributes. This study focused on the cognitive attributes. Respondents added to their cognitive leadership attributes through a number of technical and structural networks such as the course readings, curriculum requirements, and online information sources. Respondents used various online and personal contacts to compare and contrast organizational best practices. Cultural and psychosocial factors such as values in the discipline to participate and camaraderie were evident in the way respondents’ shared ideas through discourse in the forums. Respondents managed their cognitive development through completing course requirements and through experiential learning by applying the course material to their personal experience.

The distance education development process includes feedback systems such as assessment of course written requirements, forums, and surveys that resulted in

improvements to the distance education process (such as curriculum changes). The feedback loop illustrates that leader cognitive development is a continuous learning process. Strategic leader development is a result of respondents leveraging online systems such as networks, experiential learning, and discourse through forums. These systems result in developing leaders with greater cognitive and long term planning skills.

Figure 5.1 Model of Strategic Leader Cognitive Development through Distance Education



The third contribution of this study is illustrated in the model of leader professional development. The leader development model consists of three modes of professional development: institutional, experiential, and self development. Distance education programs are effective in supporting organizational professional

development initiatives by exposing leaders to networks of informational systems that promote continuous learning. This finding is important as organizations face increasing resource constraints and growing demands for professional development requirements. Distance education systems allow leaders to immediately apply new concepts to their organizations and to use the experiential learning to reinforce cognitive development. The combination of institutional learning, experiential application, and self development allows leaders to test and validate new cognitive skills in anticipating future requirements and solving challenging issues.

The Professional Development Model highlights the importance of distance education to institutional leader development and the linkage of distance education to experiential learning and self development. Institutional education and training development includes the formal curriculum structure, forums, and written requirements such as distance education programs. Leadership development creates networks and sources of information and knowledge that support experiential learning. In this study, respondents could immediately apply the course material to their personal experience since most of the students are enrolled in the distance education program on a part time basis. The forums provided a means to discuss their learning experiences. For example, respondents found the multicultural curriculum materials to be especially helpful in helping respondents contend with understand future multinational security planning. Their learning experiences were a result of the curriculum materials in the institutional program and their duties while deployed overseas.

Table 5.3 Examples of Strategic Leader Cognitive Development through Distance Education in the Professional Development Model

Types of Leader Professional Development Programs	Institutional Education and Training Development	Experiential and Operational Development	Self Development
Examples of Distance Education Professional Development Programs	Online Curriculum Sources Forums Writing Requirements	Case Studies Interactive Modules Simulations	Specialized Information Sources and Networks focused on specific skills and competencies

Distance education promotes experiential learning by providing historical case studies and requirements for the respondents to apply doctrine to the development of national security policies (e.g. a case study that discussed the ethical treatment of foreign detainees). Leaders in this study were able to apply new knowledge from the distance education program immediately to their professional lives as leaders in industry or of deployments overseas in support of national security. Respondents were serving in duty positions that required them to develop strategic level policies and strategies having national and international implications, such as establishing future military force structure. Other examples include respondents developing strategic level leadership skills through distance education while serving as life cycle project managers of major weapon systems and key planners on joint military staffs.

Leadership literature emphasizes the need for lifetime learning. This study illustrates how online leader curriculum encourages lifetime learning. Experiential development includes the application of formal instruction to case studies, simulations, and interactive module to illustrate multidimensional aspects of a system

or organization, or developmental assignments like serving as an executive assistant. Self development is the acquisition of specialized skills and knowledge to focus on specific leadership attributes such as negotiations or strategic planning.

The linkage of institutional, experiential, and self development through distance education is reinforced in theoretical and practical applications. Distance education programs expand institutional professional development opportunities beyond traditional, face-to-face programs to networked and experiential learning processes. Respondents consulted with their classmates in addition to former professional contacts to develop a broad sense of how the Army is changing approaches strategic level issues such as development of future force structure and weapon systems. Findings from this study indicate that the online networks, experiential applications, and forum discourse significantly contribute to developing strategic leader cognitive skills needed to develop organizational visions, policy and allocate resources.

Summary of Findings

Respondents in this study found that distance education systems encouraged them to develop greater knowledge through informational and personal networks, experiential application, and discourse. The informational networks increased the respondents' ability to perform strategic level leadership tasks such as long term planning and policy making. Distance education facilitates development of strategic level thinking skills because the program requires students to access, process, and apply a wide variety of informational networks such as joint military, interagency,

and international policy sources. Many of the case studies require respondents to develop coalitions and partnerships with International Government Agencies, and Nongovernmental Organizations (NGOs).

Informational networks support professional development systems and allow leaders flexibility to balance professional and personal requirements. Online systems contribute to leader development of cognitive skills such as learning through role playing simulations that can replicate many different types of organizational scenarios and structures. Leaders can gain insights to hypothetical scenarios such as supporting military operations with varying levels of personnel and equipment. One case study required respondents to anticipate a shortfall of military forces as a result of engaging in several international incidents.

This distance education program improved the respondents' ability to perform complex functions such as long term planning, boundary spanning, and network development which are vital for strategic level policy and decision making. Respondents found that the distance education program emphasizes critical thinking and looking at issues from many perspectives. Cognitive models and taxonomies in distance education programs such as role playing support the development of strategic leader mapping ability, reasoning ability to include problem solving, and critical thinking skills. In one exercise, respondents were required to role play positions in the National Security Council in developing future security policy to contend with development of nuclear weapons in Iran and North Korea. Respondents were able to relate real world events while developing their cognitive skills and understanding of the curriculum materials.

Leader Cognitive Development

This study found that successful completion of an academically rigorous distance education program increases leader cognitive capability. One respondent found that the program “increased my confidence to choose quality informational sources in evaluating international policy development as a result of reading a variety of online sources.” These findings were supported with both quantitative and qualitative data through pre and post test data analysis that indicated the increased ability of respondents for cognitive complexity and long term planning requirements. Jaques’ Stratified Systems Theory and the MCPA survey instrument provided insight into the cognitive development of strategic leaders and were also useful in determining sub culture preferences such as organizational structure, cultural, psychosocial, and management systems (Passmore 1988; Ziegenfuss 2002). For example, the findings of significant growth in respondent cognitive development in this study illustrated that most respondents selected higher order or strategic level decision making tools for performing tasks. For example, respondents found that they were increasingly comfortable with using theory and ideas as tools for decision making.

The pretest was administered prior to the respondents starting the distance education program and the respondents scored at Level Three and Four responses in the MCPA survey instrument which was the organizational level of leadership. Level Four in organization leadership is indicative of the operational level leadership with a relatively short planning time span. According to the data, respondents’ MCPA scores increased from Level Four to Level Five which is considered strategic

level of leadership by the end of the first year of the distance education program.

Table 5.4 illustrates differences between strategic and operational leader responsibilities.

Table 5.4 Strategic Stratum of Leadership Domain and Responsibility (Jaques 1991).

Stratum Civilian/Military Responsibilities	Planning Time Span
Level 6: Strategic CEO/Regional Commander Creates Policy	20 + years
Level 5: Strategic Corporate Leader/ National Command Applies Policy	10+ years
Level 4: Operational/ Management Regional Leader/ Brigade Commander Directs Complex Organizations	5+ years
Level 3: Operational/ Management District Leader/Battalion Command	2+ years

The control group was unfortunately a very small population of students that did not complete the distance education program and had no significant change in cognitive thinking skills as measured by the paired t-test. The lack of change in the control group findings were in contrast to the significant change in the treatment group that had significant change in cognitive skills as measured by the paired t-test.

Qualitative responses provided insights to the psychosocial and cultural aspects of the respondents' cognitive development such as their increasing comfort in using complex theories and ideas as tools for visioning, policy development, and

evaluation. A pattern of responses from the surveys and individual and focus group interviews addressed the question about how distance education networks, experiential applications of the course material, and forum discussions significantly contribute to strategic leader cognitive development. Respondents found that they had an increased frame of reference for understanding joint and international organizational requirements as a result of studying and discussing a variety of case studies. Distance education program materials gave respondents exposure to complex networks and ideas which increased their comfort level for uncertainty. The strategic leadership courses for example, included a written requirement for students to read a number of articles from different publications and assess their own leadership attributes based on future needs and requirements.

The data from this study indicates that the AWC distance education program increased the respondent's ability to think holistically and conceptually as a result of having to use different mediums such as online forums to consider strategic level issues such as national security. Leadership theory indicates that increasing critical reasoning and thinking skills increases the leader's ability to effectively perform their roles and responsibilities. Critical thinking skills are important to the strategic leader development process because of the need for leaders to consider many different aspects and implications about issues in strategic level decision making. Distance education facilitates critical thinking of strategic issues because of the online access to multiple informational networks and the exchange of ideas through forums. For example, in this study respondents were required to use critical thinking skills to evaluate how international leaders perceive United State security interests.

Respondent Satisfaction with Distance Education Curriculum Materials

The distance education course surveys had a 90 percent satisfaction level of the respondents with the program attributed to the quality of curriculum materials and that respondents could apply the material to their personal experiences. Respondents found that the distance education course requirements helped them in shaping their thoughts and understanding of the subject material such as strategic vision, human dimensions of strategic leadership, and ethics. Respondents acknowledged in interviews the importance of developing online informational and personal networks to support cognitive skills needed for future leadership roles and responsibilities. One respondent found that his interaction with fellow classmates “gave me a much broader perspective for international issues.”

Studies about leader cognitive development have found that students take more responsibility for their learning as they gain experience with online education . Respondents found that time management and effective communication skills were instrumental to completing the distance education program successfully. Establishing effective communications with other students and faculty to reinforce respondent knowledge through discussion and feedback was a common theme throughout the focus group and individual interviews. These findings are being integrated in student handbooks, orientations, and curriculum guidelines so that future distance education students think about how former graduates scheduled time and managed the course resources to successfully complete course requirements. A student orientation program is being developed at the Army War College in part from the findings from

this study to enhance future distance education students' preparation for utilizing the technical networks and feedback systems for addressing course requirements.

Distance education students in this study were older and had more professional experience than the average graduate student. The respondents' increased age and experience may have contributed to a high satisfaction with the distance education learning environment. Distance education programs promote adult learning through experiential and Socratic means because students are able to immediately apply the concepts to their experience. Many distance education students are part time students that are completing course requirements in addition to fulfilling their roles and duties as professionals.

Respondents that started the distance education with a graduate level of educational background had a higher level of success in this study. This was evident in the findings that show that 78 percent of the respondent population that successfully completed the distance education program had a graduate level educational background. This is in comparison to the initial population of students of which only 72 percent had graduate level degrees. Leaders that develop extensive cognitive development generally have the ability to effectively utilize self directed systems like distance education to gain additional knowledge necessary for solving complex issues. Respondents in this study found that they developed greater comfort in planning over longer time periods as a result of having to contend with long term policy issues such as the future security posture of the Middle East.

The field of distance education is evolving with the development of new programs and systems to support leader cognitive development. This study helps to

fill the gap in leadership literature about the contribution of distance education programs to leader development. However, further studies are needed to consider the many aspects and facets of leader cognitive development that the literature describes as technical, interpersonal, and cognitive skills.

Respondents found that course curriculum materials such as the “Strategic Leadership Primer”, videos, forums, and lectures were valuable in the development of strategic leadership competencies. Additional research is needed to fully explore the effectiveness of distance education and organizational systems in supporting leader cognitive development. There are some limitations such as non-universal access to high speed internet connections restricting access to some of the online materials.

The competencies of contending with increasing complexity over long periods of time are especially important for public administrators that are faced with substantial ambiguity and uncertainty as a result of changing environmental conditions. The leadership literature indicates that a significant challenge for public administrators is to maximize the value of distance education systems for future professional development opportunities. Professional development is one of the top priorities of strategic level leaders because of the need to prepare for evolving environmental developments. Online education programs minimize travel cost and students can immediately apply the concepts they learn to their professional experiences. Cognitive development contributes to the ability of strategic leaders to communicate complex issues effectively and to manage problems that have many different stakeholders and solutions (Markessini 1993; Heikkila and Isett 2004).

Recommendations for Future Research

This section recommends how future studies of cognitive development could be directed to contribute to public administration leadership literature. The first recommendation is that this study should be extended to determine the long term effects of distance education on cognitive development. Additional assessments of respondent cognitive development should be measured at the end to the second year of the Army War College Distance Education Program and at periodic increments in the future. It is important to determine the long term effects of distance education by incorporating career assignments to determine other factors that may contribute to strategic leader cognitive development.

The second recommendation is that this study should incorporate a larger and more diverse population of respondents to form a better idea of how demographic factors contribute to leader cognitive development. This study population was fairly homogenous because the population of senior military officers has very little diversity. A larger and more diverse sample would help to compare how several different treatment and control groups respond from distance education programs. The population should include both military and civilian students to include more diverse age groups, gender, and ethnic backgrounds.

This study should be expanded to evaluate the impact of distance education in the development of operational and production level leadership because all three levels of leaders interact in most organizations. Expanding the study to consider production and operational levels of leader cognitive development may have some implications for the way that strategic level leaders are educated. Many organizations

are becoming less hierarchical and thus interrelationships among organizational leaders and members are becoming more important. Leaders at all levels in organizations increasingly need the same types of communications and thinking skills since they interact on a regular basis.

The third recommendation is to use additional quantitative and qualitative survey instruments to examine interpersonal and technical competencies in addition to cognitive strategic leader competencies. Utilizing a variety of different survey instruments and interview questions to measure leader cognitive development may provide additional insights into the effectiveness of distance education. Survey instruments that assess strategic leader development such as 360 degree assessments incorporate insights from subordinates, peers, and superiors and provide multidimensional feedback to the respondents about leadership development. The investigator should also control for external factors such as other educational or experiential development experiences which was not possible in this study. Public administrators and researchers need to determine the most important parameters of the leader development process such as cognitive, interpersonal, and technical competencies. Future studies should be tailored to evaluate competencies based on organizational priorities and goals.

Although the MCPA provides some feedback on leader cognitive potential, the question of senior Army officer potential for strategic level leadership is closely linked to performance evaluations. Performance evaluations are presently limited to supervisor assessment of individual performance and leadership. Future studies should consider assessing leader potential to effectively perform tasks associated with

increasing complexity and long term planning skills. This study examined leader cognitive development through an educational process. It would be beneficial to examine how effective these educated leaders are in applying their knowledge to organizational settings. Strategic skills in can be evaluated in a number of ways including the contribution to organizational performance. There are also a number of survey instruments and methodologies available (e.g. the 360 degree survey) to examine various aspects of leader cognitive development.

Additional work is required to develop the predictive qualities of the MCPA in terms of assessing individual and collective potential for the highest levels of leadership as a result of a distance education program. Future studies should also be designed to evaluate the impact of course content in the cognitive development of respondents. An objective of future studies should be to substantiate cognitive development with respondent performance in both academic and practitioner settings. For example, supervisors could use feedback from the MCPA instrument in developing and measuring professional development programs tailored to skills and competencies. The MCPA survey instrument identifies nine leader cognitive skills such as the way leaders use guidance, information, approach rules, and seek results. This planning typology offers a way to further substantiate the relationship between strategic leader cognitive development and performance by identifying specific strengths and weaknesses in leader cognitive attributes.

Future studies involving the MCPA survey instrument could include feedback to respondents by trained administrators that have experience with the survey instrument and theory. The intent is to determine if there is even greater cognitive

development as a result of the feedback. Leadership literature indicates that the feedback process is important to leaders for evaluating and internalizing the attributes needed for professional development. The MCPA survey instrument provides some detailed insights to leader development in relation to other leaders. Leadership feedback may cause adverse results if the respondents are not educated properly on the meaning and limitation of the instrument.

The fourth recommendation is that the data from this distance education study should also be compared with a similar study with a traditional graduate education program. This data will determine whether there are similarities or differences in the types of institutional professional development programs and strategic leader cognitive development. Greater analysis in comparing the programs is important because organizations are increasingly using distance education and a combination of distance and resident education programs. Comparisons and contrasts of the programs will provide insights into what types of curriculum materials or topics are more effectively taught through distance and/or resident type instruction.

By extending the study beyond the distance education program, the post graduate data may provide some additional insights about how respondents apply their distance education experience to their professions. Longitudinal studies provide additional insights to the data and trends in the data that are important to determining long term impacts and trends of the distance education curriculum and processes in strategic leader cognitive development. It is important to determine if the data concerning cognitive development over the long term is similar to the finding at the end of the first year of the program. Longitudinal studies may provide some

additional data about other factors such as experiential assignments and self development programs contribute to strategic leader cognitive development.

Concluding Remarks

Strategic leader cognitive development through distance education is evolving as technology creates new ways to deliver information and to work collaboratively at a distance. Ongoing development of distance and traditional education systems are resulting in effective development programs. Annual review of distance education programs will allow administrators to assess and update leadership theory and practice and would also allow faculty members and students opportunities to collaborate on evolving technological systems.

The evolution of technology systems is creating greater access to educational media and information sources that are important to the leader development process. The development of technology systems are diversifying the way that distance education can be used to adapt to a changing environment . This study illustrates how strategic leaders need to develop skills continually to assess information from the myriad of sources and continue to deploy effective technologies within organizations.

The findings from this study contribute to the body of knowledge about how distance education supports the development of strategic cognitive leadership skills in the field of public administration. Studies on strategic leader cognitive development through distance education should be expanded because of the numerous developments in the field of technology. Studies about distance education programs

are important because these programs are increasingly becoming more main stream in leader professional development programs.

The institutional landscape of higher education and professional development is evolving with a shift toward decentralization as instruction for leaders is becoming more self-directed with a greater emphasis on strategic leader competencies . The multidisciplinary aspects of leadership literature illustrates the importance of using a combination of methods such as online surveys and interviews to assess the development and performance of future leaders. Students and practitioners of organizational culture and management should find this study useful because it illustrates leader cognitive development in theoretical and practical ways. The field of public administration will benefit from continued studies that examine how both distance and traditional education programs contribute to leader cognitive development.

Appendix A: Survey and Focus Group Letters and Instruments

15 May 2005

MEMORANDUM FOR Department of Distance Education (DDE) Class of 2007

SUBJECT: Research Survey

1. Please complete the enclosed consent form and return the form to my office at: U.S. Army War College, Room A332, 122 Forbes Avenue, Carlisle, PA 17013-5243. Once I have received your consent form I will send you the Modified Career Path Appreciation (MCPA) survey as part of a research project in evaluating strategic leader development. A prepaid, addressed mailing envelope is enclosed for your use. The purpose of this research is to look at the impact of the DDE course on increasing cognitive capacity and to determine the feasibility of a distance education leadership feedback program. The MCPA is an instrument designed to assess cognitive potential or the kinds of thinking skills needed to perform effectively as strategic leaders.

2. The MCPA assesses your capacity to deal with complexity and predicts your future strategic organizational level of leadership. The MCPA is part of a battery of individual assessment instruments that resident course students find useful and is also administered to students at the National Defense University. A potential progress data sheet and feedback will be provided to you upon request when you complete the final survey. The data sheet indicates your response in comparison to your peers as well as an indication of your level of development that may be useful to your personal leadership development planning.

3. It takes approximately 10-15 minutes to complete the survey and your participation is important for future development of the DDE leadership feedback program. Please follow the instructions that are provided with the instrument. The survey participation is voluntary and the results will be kept confidential. Your participation in this survey data is part of my doctoral research with Penn State University and the Army War College. Thank you in advance for your participation and if you have any questions, please contact me at (717) 245-3577, DSN 242-3577 or by email at Susan.R.Myers@Carlisle.Army.Mil.

SUSAN R. MYERS
COL, EN
Director of Leader Management Studies
Department of Distance Education

Informed Consent Form for Social Science Research
The Pennsylvania State University

ORP USE ONLY: IRB# 21018 Doc. #1
The Pennsylvania State University
Office for Research Protections
Approval Date: 5/11/05 – J. Mathieu
Expiration Date: 5/9/06 – J. Mathieu
Social Science Institutional Review Board

Title of Project: Evaluation of Strategic Leader Cognitive Development through
Distance Education at the U.S. Army War College

Principal Investigator: Susan R. Myers, Graduate Student
Penn State, Harrisburg Campus
Department of Public Affairs
777 Harrisburg Pike, Middletown, PA 17057-4849
(717) 948-6058; susan.r.myers@carlisle.army.mil

Advisor: Dr. James Ziegenfuss
Penn State, Harrisburg
Department of Public Affairs
777 Harrisburg Pike, Middletown, PA 17057-4849
(717) 948-6053; jtz1@psu.edu

1. Purpose of the Study: To explore the impact of the Army War College distance education course of study in the cognitive development of strategic leaders.
2. Procedures to be followed: You will be asked to complete this consent form and mail to my office at the following address: COL Susan Myers, Room C336, 122 Forbes Avenue, Carlisle Barracks, PA 17013. Once I have received your consent form I will send you the Modified Career Path Appreciation (MCPA) survey instrument and ask you to complete the survey instrument. I will provide a preaddressed mailing envelope for you to return the survey to my office. You are asked to complete the MCPA survey instrument at the beginning and again toward the end of your first year program of studies. Another copy of the survey will be sent to you with course 541 material. The completed surveys will serve as data points to measure if there is change in cognitive development associated with completion of the program of studies. You may also be asked to participate in a focus group to discuss the survey instrument when you attend the resident course next summer. The focus group will consist of 8-12 students and the purpose is to discuss the survey instrument as it pertains to your strategic leadership educational experience at the Army War College.
3. Discomforts and Risks: There are no risks in participating in this research beyond those experienced in every day life. Some of the questions are personal and might cause discomfort.
4. Benefits: You might learn more about your cognitive development by participating in this study and your strengths and weaknesses in developing strategic leader attributes. This research might provide a better understanding of

the value of the War College distance education program and the information could help to make the program better.

5. Duration: It will take about 15 minutes to complete the survey questions each time or a total of 30 minutes. The focus group will last approximately 30 minutes.
6. Statement of Confidentiality: You will be asked to provide the last four numbers of your social security number only to track the survey submissions. If you speak about the contents of the focus group outside the group, it is expected that you will not tell others what the individual participants said. Only myself, the investigator and my advisor listed on the previous page will know your identity. The data will be stored and secured in a secure file in my office at the Army War College, Carlisle Barracks, Pennsylvania. Upon completion of this research, I will strip the identifiers (the last four numbers of your social security number) from the data. The Office for Research Protections and the Social Science Institutional Review Board may review records related to this project. No personally identifiable information will be shared in the event of a publication or presentation resulting from the research.
7. Right to Ask Questions: Please address questions about this research and the consent form to COL Myers at (717) 245- 3577, or see me in Room C336, Army War College, 122 Forbes Avenue, Carlisle, PA 17013. If you have questions about your rights as a research participant, contact The Pennsylvania State University's Office for Research Protections at (814) 865-1775.
8. Compensation: Participants will not receive any compensation for participating in this research.
9. Voluntary Participation: Your decision to be in this research is voluntary and you can stop at any time. You do not have to answer any questions you do not want to answer.

You must be 18 years of age or older to take part in this research study.

If you agree to take part in this research and the information outlined above, please sign your name and indicate the date below. You will be provided a copy of this signed and dated consent form for your records upon request. Thank you for your support.

Participant Signature

Date

Person Obtaining Consent

Date

Modified Career Program Assessment (MCPA) Survey Instrument

Please enter the last four numbers of your Army War College DDE Log in Number (for tracking purposes only): _____

Please enter your age: _____

Please enter your gender (Male/Female): _____

Please enter your ethnic group (White; Black; Hispanic; Asian; Other):

Please enter your grade/ rank (GS 14; LTC/05; COL/06): _____

Please enter your total years of government service: _____

Please enter your professional specialty (Engineer, Administrator, Infantry, and Logistician): _____

Please enter the largest organizational level that you have led (less than 2,000 personnel; 2-6,000 personnel, 6-30,000 personnel): _____

Please enter the highest organizational level that you **desire** to lead (less than 2,000 personnel, 2-6,000 personnel, 6-30,000 personnel):

Please enter your highest level of civilian education (undergraduate, graduate, post graduate): _____

Instructions

In the MCPA you will be given nine phrase sets of statements. Each statement is a possible way you could think about your work, or conditions in which you like to work, or the kind of work you like to do. In each set of statements, pick the one you feel is most characteristic of you – the one you like most, and then pick the one least characteristic of you – the one you like least. Place the number indicating the “most liked” and “most disliked” phrases. After you have picked the ones you most and least agree with, you will be asked to explain why those were your choices. After you have completed all nine phrase sets, you will be asked to describe your time horizon (the span of time that you define in your personal life in weeks, months or years for the near term, mid term and far term). The final question addresses the extent your comfort level in dealing with VUCA (volatility, uncertainty, complexity, and ambiguity).

Please return the completed survey to COL Susan Myers at Susan.Myers@Carlisle.Army.Mil or you can print and mail to me at: United States Army War College, COL Susan Myers, Room 336, Root Hall, 122 Forbes Ave., Carlisle, PA 17013. Thank you for your participation.

Phrase Set I

Item Number Most Liked : _____ Item Number Most Disliked: _____

1. Define the horizons of the work
2. Work with connections even if particular links are unclear
3. Work to complete set of instructions
4. Work with a minimum of preconceptions
5. Work in abstracts and concepts
6. Work within a given framework

Explain your selection:

Phrase Set II

Item Number Most Liked : _____ Item Number Most Disliked: _____

1. Do one thing at a time
2. Use works, ideas and theories as tools
3. Focus on one part of the task at a time
4. Compare the merits of alternative options
5. Establish new relationships between previously unrelated materials
6. Coordinate by drawing together a number of separate strands

Explain your selection:

Phrase Set III

Item Number Most Liked : _____ Item Number Most Disliked: _____

1. Look for the intent of the rules
2. Make sure the rules fit
3. Use the rules as guides to action
4. Follow the rules
5. Work with the rules
6. Redefine the rules

Explain your selection:

Phrase Set IV

Item Number Most Liked : _____ Item Number Most Disliked: _____

1. Span a broad spectrum and also focus in detail on certain aspects
2. Follow instructions carefully
3. Transcend the task
4. Take a systematic approach
5. Look for relationships between the current task and other tasks
6. Approach each task in own right

Explain your selection:

Phrase Set V

Item Number Most Liked : _____ Item Number Most Disliked: _____

1. Figure out the right sequence of tasks
2. Consider the context of the problem
3. Do first things first
4. Break up the problem into separate parts
5. Analyze problems by searching for underlying issues
6. Create an overall picture of the problem

Explain your selection:

Phrase Set VI

Item Number Most Liked : _____ Item Number Most Disliked: _____

1. Allot a specific amount of time to each task
2. Expect that a task will be transformed while it is in progress
3. Transform the task
4. Develop a plan with a clear sequence of steps
5. Handle ambiguity by developing opposing points of view
6. Follow a set procedure

Explain your selection:

Phrase Set VII

Item Number Most Liked : _____ Item Number Most Disliked: _____

1. See gaps as the most interesting part
2. Stop if there is a problem
3. See gaps in knowledge as interruptions to work
4. Know that new information creates new gaps
5. See gaps as pauses in the process
6. See gaps in knowledge as missing pieces of a jigsaw

Explain your selection:

Phrase Set VIII

Item Number Most Liked : _____ Item Number Most Disliked: _____

1. Rely mainly on previous experience
2. Resolve problems by choosing between alternatives
3. See the solution as the beginning of anew problem
4. Seek to develop an original solution
5. Expect to be told what to do
6. Expect that the problem will resolve itself in time

Explain your selection:

Phrase Set IX

Item Number Most Liked : _____ Item Number Most Disliked: _____

1. Conflicting solutions must sometimes be accepted
2. Hold a solution while developing an alternative approach
3. Most problem solutions are straightforward
4. There are no permanent solutions
5. Go back to the beginning if the thread is lost
6. Options should be discarded

Explain your selection:

Personal Time Horizons

Most people have defined unique time horizons in their personal lives. As you define them in your personal life –not how the military defines them – how long in weeks, months or years are NEAR TERM, MID TERM, and FAR TERM.

NEAR TERM

MID TERM

FAR TERM

Final question:

One of the goals of the AWC experience is to help prepare you to operate effectively in the VUCA (Volatile, Uncertain, Complex, Ambiguous) environment. To what extent do you believe that your comfort level with in dealing with a VUCA external environment has increased during your time at the US Army War College? (Please place the number for the statement that best reflects your opinion on this line _____).

1. Increases dramatically – I am much more comfortable dealing with VUCA.
2. Increased somewhat – I feel a little more comfortable now than a year ago.
3. Did not increase at all – I arrived here already comfortable dealing with VUCA.
4. Did not increase at all – I didn't like VUCA when I arrived and still do like it.
5. Other (please explain).

Thank you for completing this survey. Please verify that you have answered all nine Phrase Sets and the Personal Time Horizon Estimates. If you have questions about this project, please contact COL Susan Myers, (717) 245 -3595 or email at Susan.Myers@Carlisle.Army.Mil.

MCPA Phrase Scoring Key

Phrase Set 1

1. Work to a complete set of instructions
2. Work within a given framework
3. Work with connections even if particular links are unclear
4. Work in abstracts and concepts
5. Work with a minimum of preconceptions
6. Define the horizons of the work

Phrase Set 2

1. Do one thing at a time
2. Focus on one part of the task at a time
3. Co-ordinate by drawing together a number of separate strands
4. Compare the merits of alternative options
5. Establish new relationships between previously unrelated materials
6. Use words, ideas and theories as tools

Phrase Set 3

1. Follow the rules
2. Work within the rules
3. Make sure the rules fit
4. Use the rules as guides to action
5. Look for intent of the rules
6. Redefine the rules

Phrase Set 4

1. Follow instructions carefully
2. Approach each task in its own right
3. Take a systematic approach
4. Span a broad spectrum and also focus in detail at certain aspects
5. Look for relationships between the current task and other tasks
6. Transcend the task

Phrase Set 5

1. Do first things first
2. Break up the problem into separate parts
3. Figure out the right sequence of tasks
4. Create an overall picture of the problem
5. Look for underlying issues
6. Consider the context of the problem

Phrase Set 6

1. Follow a set procedure
2. Allot a specific amount of time to each task
3. Impose a procedure to reduce uncertainty
4. Handle ambiguity by developing opposite points of view
5. Expect that a task will be transformed while in progress
6. Transform the task

Phrase Set 7

1. Stop if there is a problem
2. See gaps in knowledge as interruptions to work
3. See gaps as pauses in the process
4. See gaps in knowledge as missing pieces of a jigsaw
5. See gaps as the most interesting part
6. Know that new information creates new gaps

Phrase Set 8

1. Expect to be told what to do
2. Rely mainly on previous experience
3. Expect that the situation will resolve itself in time
4. Resolve tasks by formulating alternatives
5. Seek to develop an original solution
6. See the solution as the beginning of a new problem

Phrase Set 9

1. Most problem solutions are straight forward
2. Options should not be discarded
3. Go back to the beginning if the thread is lost
4. Hold a solution while developing an alternative
5. There are no permanent solutions
6. Conflicting solutions must sometimes be accepted

Face-to Face and Focus Group Interview Protocol

Introduction

The purpose of the study is to evaluate strategic leader cognitive development through the first year of the Army War College Distance Education program. The focus of the study is to determine what factors of the distance education process such as policy, management and organizational behavior are most important to strategic leader cognitive development. This evaluation will facilitate a blueprint of the Army War College strategic leader development through distance education process. This blueprint establishes a foundation for future strategic leader development programs through distance education.

This interview is to focus on specific attributes of strategic leader development such as what it means to you in the context of your current and future roles and responsibilities as a strategic leader. It is important to understand what this means in context of the mission, goals and objectives of the Army War College; how you manage and develop strategic leadership skills; the obstacles faced trying to develop strategic leadership skills; and the opportunities that facilitate strategic leader cognitive development. The results from these interviews will help develop and blueprint for future policy, management and organizational behavioral systems for strategic leader professional development programs through distance education.

In order to ensure the interview relates terms in similar contexts, the following definitions provide a common understanding about strategic leader cognitive development through distance education. The Army War College defines Strategic Leadership as skillful formulation, coordination, and application of ends (objectives), ways (courses of action) and means (supporting resources) to promote and defend the national interests. Strategic leaders provide vision, focus, command and leadership skills, inspires other to think and act, and coordinates ends, ways and means. Strategic leader cognitive development is the knowledge and skills to perform strategic leader functions of creating complex systems, organizing and acquisition of major resources, creating policy over a 10 plus year time span. Growth rate is the rate the individual will increase in capacity to handle complexity over time, absent intervention explicitly intended to increase growth rate. Strategic leader cognitive thinking skills is the ability to deal with abstract concepts; cross-reference from one type of problem dynamic to another and use both rigorous analytic and integrative logic (Jacobs and Jaques 1990).

Distance Education is planned learning that normally occurs in a different place from teaching and as a result requires special techniques of course design, instructional techniques, methods of communication, organizational and administrative arrangements (Moore and Kearsley 1996).

Introduction Question: Name and strategic leadership goals.

1. What aspects of the program challenge and support your cognitive development?
2. What course material has been most helpful for dealing with complex thinking skills and situations?
3. How might you describe change in your comfort level to contend with more complex situations that you can attribute to the AWC DDE program?
4. Did you participate in any other professional development or educational programs this past year?
5. What implications do you think a deployment may have had on your education and cognitive development?
6. How did you determine your personal time horizon (far term)?
7. How might you describe the relationship of your personal time horizon to your experience with the AWC DDE program?
8. From your experience as a senior leader, what do you see are the greatest challenges for strategic leaders?
9. What would you change about the AWC DDE program to better prepare you for strategic leadership roles and responsibilities?
10. What survey questions were more difficult than others in determining what phrase sets you liked best?
11. How helpful was it to be able to explain your selection in each phrase set?
12. What are your biggest challenges as a distance education student?
13. How can we make this research process better?
14. Summary: Do you have anything else that you would like to add?

Face-to Face & Focus Group Interview Reporting
 Information about the Interviewee & Focus Group

Date of Interview	
Location of Interview	
Number and Description of Participants	
Moderator & Assistant Moderator Contact Information	

Responses to Questions

1. How has the Distance Education program impacted your development as a strategic leader?

Brief Summary/Key Points	Notable Quotes

2. What aspects of the course materials and educational process were helpful and not so helpful?

Brief Summary/Key Points	Notable Quotes

3. What are your greatest challenges as a strategic leader?

Brief Summary/Key Points	Notable Quotes

4. What are your greatest challenges as a Distance Education student?

Brief Summary/Key Points	Notable Quotes

5. Did you participate in any other type of professional development programs while enrolled in this DDE program?

Brief Summary/Key Points	Notable Quotes


6. What are your questions and interests about this study?

Brief Summary/Key Points	Notable Quotes

7. Will you participate in future Distance Education programs and feedback programs?

Brief Summary/Key Points	Notable Quotes

Appendix B: Internal Review Board Approval



From: Mathieu, Jodi [SMTP:zjc2@psu.edu]
To: Myers, Susan R. COL USAWC; srm264@psu.edu
Cc: jtz1@psu.edu
Subject: IRB# 21018 - "Evaluation of Strategic Leader Cognitive Development through Distance Education"
Sent: 5/11/2005 3:48 PM **Importance:** Normal

Hi Susan,

Your research project was approved as of today. You may begin your research. An approval letter will be mailed to you shortly.

Attached is(are) the approved IRB consent form(s) with the approval stamp. Please ensure that this consent form is used to enroll new participants.

Please do not hesitate to contact me if you have any questions.

Thank you,

Jodi



Jodi L. Mathieu, CIP

IRB Administrator - Social Science

Office for Research Protections

The Pennsylvania State University

212 Kern Graduate Building

University Park, PA 16802

Telephone: 814-865-1775

Fax: 814-863-8699

<http://www.research.psu.edu/orp/>

 [Myers - #21018 \(5-11-05\).doc](#)



DEPARTMENT OF THE ARMY
UNITED STATES ARMY WAR COLLEGE AND CARLISLE BARRACKS
CARLISLE, PENNSYLVANIA
17013-5217

REPLY TO
ATTENTION OF

Office of the Dean of Academics

Colonel Susan R. Myers

Penn State, Harrisburg Campus
Department of Public Affairs
777 Harrisburg Pike
Middletown, PA 17057-4849

Dear Colonel Myers:

The U.S. Army War College received your request to engage in research on "Evaluation of Strategic Leader Cognitive Development through Distance Education."

Approval was recommended by the USAWC Institutional Review Board to administer your study to selected USAWC students. However, in accordance with standard and customary research procedures, your subjects may withdraw at any time from this research effort without reason, cause, or explanation.

A copy of this approval will be forwarded to Dr. Clay Chun, Chairman, Department of Distance Education.

The point of contact for this action is Dr. Anna Waggener, Director, Institutional Assessment, U.S. Army War College, commercial 717-245-3365 or e-mail Anna.Waggener@carlisle.army.mil. Please contact her if you have further questions.

Sincerely,

William T. Johnsen, Ph.D.
Dean of Academics

Appendix C. Permission to Use the Modified Career Path Appreciation Survey Instrument

From: Gillian Stamp [SMTP:gillian@bioss.com]
To: Susan.Myers@carlisle.army.mil
Cc:
Subject: RE: Research at the Army War College
Sent: 4/14/2005 12:42 PM **Importance:** Normal

Dear Susan,

Please accept my apologies for not replying. I have not been able to access this email address for eight weeks and only managed to sort it out today.

The IP of MCPA is with Bioss International and as a Director I am happy to give you permission to use it in your research.

I look forward to hearing how it all goes.

with best wishes,

Gillian

Appendix D. Study Data

Table 1: Initial Qualitative Responses to MCPA Pre-Test Survey and Analysis

MCPA Survey Question	Analysis of Response Data	Respondent Reply
Phrase Set 1. Guidance and Frameworks	<p>Responses evenly distributed between production, organizational and strategic leadership levels</p> <p>Lowest mean & mode of all questions which can be attributed to military bureaucracy and structure</p>	<p>“I prefer working within given frameworks and like to know limits but not getting complete instructions as it limits initiative”.</p> <p>“I like to work toward a vision or future event with measurable results”.</p> <p>“Working within a framework is comfortable and defining the horizons entails understanding of the unknown”.</p>
Phrase Set 2. Information and Tools	<p>Majority of responses were in the operational, then strategic levels</p> <p>Lowest mode which can be attributed to educational focus of military officers to compare merits of alternative options</p>	<p>“I like multitasking environments and connecting the dots to see the big picture and then align resources to support it”.</p> <p>“I like exploring alternatives to make systems work better and tackling many tasks at one time”.</p> <p>“I like to compare the merits of alternative options”.</p>
Phrase Set 3. Rules	<p>Responses were primarily in the higher operational and strategic levels however; respondents had the highest rate of dislike for the strategic level response perhaps because they misunderstood the question.</p>	<p>“Rules are guides to action; the most important element is intent...”</p> <p>“By determining intent of rules I can determine how they apply to a given situation”.</p>

	Military culture promotes using rules as guides and examining the intent	“Rules are guides but not absolutes; redefining rules is subject to interpretation”.
MCPA Survey Question	Analysis of Response Data	Respondent Quotes
Phrase Set 4. Approach to Tasks	<p>Majority of responses were concentrated in the operational level</p> <p>Responses mirror military education and practices for broad spectrums and systematic approaches</p>	<p>“Spanning a broad spectrum and focus in detail on certain aspects is expected of leaders at our grade”.</p> <p>“I like the big spectrum and recognize that I can not deal with everything”.</p> <p>“Following a systematic approach helps me to be thorough and transcending the task does not actually complete the task”.</p>
Phrase Set 5. Methods in Analyzing Issues and Problems	<p>Responses were predominately at the operational and strategic levels</p> <p>Responses focus on evaluating the overall picture of the problem and underlying issues</p>	<p>“I like to visualize the problem then conceptualize the solution through a series of steps”.</p> <p>“Creating a picture of the problem requires vision”.</p> <p>“You have to analyze underlying issues to understand the problem”.</p>
Phrase Set 6. Procedure	<p>Most responses span the operational and strategic levels</p> <p>Army policy and procedure is generally highly structured</p>	<p>“I expect tasks to transform while in progress and do not hold myself to set time as I work until the task is complete”.</p> <p>“Procedures need to evolve with problems”</p>

		“Developing a plan with a clear sequence of steps is the way I approach tasks”.
MCPA Survey Question	Analysis of Response Data	Respondent Quotes
Phrase Set 7. Gaps in Knowledge	<p>Majority of responses were in high operational and strategic levels</p> <p>Military officers are accustomed to working with multifaceted “jigsaw” types of organizations that are creating new information and gaps</p>	<p>“I am an info junkie and information is always welcomed to help fill in holes”.</p> <p>“I like the process of creativity and knowing the solution up front does not bother me”.</p> <p>“Gaps are potential problems and we must work them hard to clear up uncertainty and ambiguity...”</p>
Phrase Set 8. Solutions	<p>Responses were primarily in the high operational and strategic levels.</p> <p>Military decision making models focus on resolving tasks by formulating alternatives.</p>	<p>“I resolve problems by looking at alternatives”.</p> <p>“Choosing between alternatives brings closure”.</p> <p>“Evaluating alternative solutions increases the likelihood of selecting the best resolution for a particular problem”.</p>
Phrase Set 9. Decision Making	<p>Strongest responses of all survey instrument questions at the strategic level.</p> <p>Changes in the environment make problem solving and decision making an ongoing process.</p>	<p>“Solutions change as resources change in availability”.</p> <p>“Always look for better ways to solve a problem”.</p> <p>“Everything changes and we must lead change”.</p>

Table 2. Interviews and Focus Groups

Question	Interview	Focus Group
1. How has time invested in DE contributed to your development as a strategic leader?	Challenge in juggling many responsibilities DE program gives me tools to look at world issues with better understanding	Broadened perspectives of strategic leadership issues and environments – appreciation for complexity, uncertainty, ambiguity
	Given me “coup de oeil” to focus thought and anticipate future requirements	Greater depth and flexibility in thinking skills; Need for balance
	Helped me sort through and prioritize broad array of information	Greater thought and understanding about long term thinking
	Opportunity to gain insights from peers and faculty that have other insights	Increased networks of information and personal contacts
	DE program helped me understand technical, cognitive, and interpersonal skills required at the strategic level as well as filling knowledge gaps.	
Summary: DE provides tools for greater knowledge with a long term perspective.	I have greater understanding of DOD processes and international relations theory.	
	The program encouraged me to develop a broader perspective that is more acute and long term	
	A little early to tell. I expect the investment of the DDE program to be fully realized in the near future.	
	My eyes have been opened to a whole new side of the military and I look at things in a new perspective.	

Question	Interviews	Focus Groups
2. What aspects of the program challenge, assess and support your cognitive thinking skills? (Course material that is most helpful for developing thinking skills).	The rigor: academic pace, methodology and review along with faculty feedback that broadens learning.	Allowed students to contribute from their strengths and experience
	Forced to study subjects that are not in “comfort zone” but needed for higher level leadership.	Getting to know faculty and students on a more personal basis
	Course material about leadership, how DoD works, and global issues to help fill in the gaps.	Writing requirements and forums required formalize thoughts and ideas in context
	Exposure to new technology and graduate level literature as well as forum discussions.	
	The classics on war from a strategic leader perspective such as Sun Tzu and General Slim	
	I found the course work to be informative but not as much as law school.	
Summary: course materials and methodologies such as the forums create new ways of learning through technology.	Some of the sources are challenging and I needed to develop my understanding beyond the materials. The forums are especially helpful in building my knowledge and understanding.	
	Program requires me to stretch my thought process and comprehension.	
	The program has been challenging and the reading, forums, and writing requirements developed my ability to strategically analyze complex issues.	

Question	Interview	Focus Group
3. How might you describe any changes in your ability to contend with complex situations that can be attributed to DE program?	Understanding of what the strategic leader faces. Knowledge is power and if you act, the environment also acts creating resistance, adaptation.	Time management and greater ability to anticipate complex future requirements over longer time periods
	Steady progress generally yields success and to stay on the offensive by adapting your plan.	Ability to synthesize information from a number of sources
	Exposure to new ideas gave me a greater comfort level.	Importance of discussion with peers and experts
	Experience in contending with multiple forms of technology and communication.	
	I am more aware of questions to ask.	
Summary: Better understanding of strategic level issues through distance education experience.	I feel more confident in understanding international relations theory.	
	Much greater comfort in contending with strategic level issues.	
	I've realized that I need to take more time to break complex issues into parts to look at various aspects of problems.	
	I look at the long term impacts from my decisions.	

Question	Interview	Focus Group
4. Did you participate in any other professional development or educational programs this past year?	Continuing Education for Certified Public Accountants.	Professional development courses, some formal education; Experiential development assignments; Deployment
	Annual DoD and Army Training Requirements.	Yes but not to the extent that this course required.
	Technical updates to professional requirements in field of Human Resource Management.	Institutional (courses) and Self Development (reading and researching)
	Personal professional reading program.	
	I completed the Master's Degree in Strategic Intelligence and found a degree of overlap of course material.	
Summary: Many students engaged in other forms of professional development.	I completed a National War College course this year that was similar in content to the DDE program of study.	
	No	
	Yes but it was very simple in terms of content.	
	I finished my dissertation for a PhD in business administration and professional development in the logistics field.	

Question	Interview	Focus Group
5. What implications do you think a deployment may have had on your cognitive development?	I have not deployed to a war zone but have taken part in shorter missions that have a profound impact on my leadership development because of the myriad of tasks and responsibilities.	Limited access to course material; Lateness in receiving mailed materials; Emotional events with separation and death/injury
	Did not deploy during this course.	Many different distractions
	Deployment to Iraq contributed to my cognitive thinking because I was exposed to a broad array of situations some of which had strategic implications.	Lots of learning in a short time because of unique requirements and exposure to strategic issues
	Deployment requirements challenged the balancing act of professional and operational requirements	
	I deployed to Iraq and my professional horizon extended significantly.	
Summary: Deployments contribute to cognitive development because of the complex and rapidly changing conditions.	I had two deployments that enhanced my cognitive skills.	
	Significantly since I was assigned to a multinational unit this past year.	
	Critical. I was a Battalion Commander in Iraq which gave me some insights to the challenges that strategic leaders face in a high conflict environment as well as second and third order effects of decision making.	
	My deployment distracted me from doing my best work in the program.	

Question	Interview	Focus Group
6. How did you determine your personal time horizon?	I tend to plan in 5 year block because I feel like it has some certainty and relevancy to what I can influence. I try to remain flexible for the unexpected.	Approach to professional and personal requirements
	I try to plan at least 10 years in advance. Comparison with my spouse showed great differences as hers is near term of weeks.	Linked to level of responsibility and type of assignment
	Long term planning is linked to what I think I can influence and beyond 10 years is unrealistic to me.	How I think and how I am expected to think at the strategic level
	Higher order thinking requirements drove longer term time horizons.	
Summary: Timelines are linked to professional and personal goals. DDE experience increased comfort in long term planning.	I have always looked in terms of five and ten years.	
	Based on key milestones in my professional and personal experience.	
	I am single and have a great deal of flexibility in planning my time.	
	I always ensure that I schedule personal time in order to have a balanced life.	

Question	Interview	Focus group
7. What are the greatest challenges for strategic leaders?	Anticipating future major contingencies and being able to manage large scale operations as well as overcome resource constraints without major harm to large populations.	Overcoming VUCA, resource constraints
	Prepare for future requirements.	Balancing requirements and resources
	Identifying and managing knowledge gaps especially with the profound changes in technology.	Developing international cultural competencies since we are globally linked.
	Monitor global changes and determine how to build coalitions to support and protect interests.	
	Anticipating change, dealing with ambiguity.	
Summary: Challenges for strategic level leaders include anticipating change and need for increasing ability to contend with complexity.	Gaining an understanding of issues and the temptation to avoid problems. It is easy to just work on issues that we have a higher comfort level .	
	Need to focus further out in time and inter-rationally with other parameters.	
	Getting others to think at a strategic level and work together as a team. It is important to have a diverse group of team members and ideas to represent the entire spectrum of the population.	
	Keeping up with the ever changing world.	

Question	Interview	Focus Group
8. What are your greatest challenges as a DDE student?	To invest the time required to synthesize the large quantity of information and complete quality assignments.	Time Management, Understanding the requirements, Completing reading and writing requirements
	Carve out time to complete course requirements and be able to internalize what I am learning.	Having time to complete the reading; Distractions at work and home
	Being able to communicate my ideas effectively and to use faculty feedback to improve my learning.	Understanding and Completing requirements on time
	Balancing professional and personal needs.	
	I do better in learning with groups of people interacting than writing papers or having to work on my own.	
Summary: Challenges for DDE students include time management, balancing professional and personal requirements and communication skills.	Time management and to ensure the course enhances my skills.	
	Time management and procrastination.	
	Trying to get use to a new way of learning since this was my first experience with online learning.	
	Finding time to balance work, course requirements, Reserves and personal time.	

Question	Interview	Focus Group
9. How helpful was it to be able to explain your selection in each phrase set of the MCPA survey?	I found it to be helpful because I had to gather my thoughts, test my answer and explain ambiguities such as “why do I feel this way?”	Somewhat helpful
	Enabled me to be able to reflect about my educational experience and to put thoughts into context.	Very helpful – helped to reinforce my selections
	Selecting the responses was difficult to some degree because several responses were appealing. Explaining my response helped me to understand my needs.	
	Somewhat helpful in synthesizing my thoughts and ideas.	
Summary: It was helpful to explain selections and have the opportunity to reflect and synthesize ideas.	I had no issues.	
	Helpful from the standpoint that it allowed me to reflect on important aspects of my learning experience.	
	Very helpful but it was hard finding time to analyze and reflect.	

Question

<p>10. What would you change about the DE program to better prepare for strategic leadership roles and responsibilities?</p>	<p>I trust the AWC leadership compiles what I need to learn. A General Officer mentor is deployed to Kuwait concludes that 75% of his job is strategic leadership doctrine from the course.</p>	<p>Introduction to program, instructors and evaluators at the beginning of the program.</p>
	<p>Conduct quarterly focus groups at various sites so that students get more face to face discussion and interaction with faculty.</p>	<p>Evaluate application of concepts to experience.</p>
	<p>More flexibility on word count and responses to requirements.</p>	<p>More person to person time and feedback.</p>
	<p>Do more experiential lessons so students gain better insights of strategic level issue resolution.</p>	
	<p>Encourage students to pursue and share mentoring experiences with strategic level leaders.</p>	
	<p>I would recommend more biographical readings like Slim with an application of certain leadership.</p>	
	<p>More personal interaction between faculty and students.</p>	
<p>Summary: Recommendation for increased personal interaction and case studies in the DDE program.</p>	<p>More opportunities to interact personally and expanding the forums. This is more in line with the way the Army operates and we should educate as we fight.</p>	
	<p>More access to live lectures and video over readings. The forums offer a good way to share information and to interact with classmates.</p>	

References:

- Argyris, C. (2004). Reasons and Rationalization: The Limits to Organizational Knowledge. Oxford, Oxford Press.
- Army, D. o. t. (1999). Field Manual 22-100, Army leadership: Be, Know, Do. Washington, D.C.
- Avolio, B. J. (1999). Full leadership development: Building the vital forces in organizations. Thousand Oaks, Sage Publications.
- Barnard, C. (1968). The Functions of Executive Leadership. Cambridge, Harvard University Press.
- Bass, B. and P. Steidlmeier (1992). Ethics, Character, and Authentic Transformational Leadership. ERIC Digest, ERIC. **2004**.
- Bass, B. M. (1998). Transformational Leadership: Industrial, Military, and Educational Impact. Mahwah, Lawrence Erlbaum Associates.
- Bass, B. M. and B. J. Avolio (2000). Effects on platoon readiness of transformational/transactional platoon leadership. Alexandria, U.S. Army Research Institute for the Behavioral and Social Sciences.
- Bass, B. M. and B. J. Avolio (2003). Transformational Leadership = Organizational Success. Redwood City, Mind Garden Minor. **2004**.
- Bass, B. M., D. I. Jung, et al. (2003). "Predicting Unit Performance by Assessing Transformational and Transactional Leadership." Journal of Applied Psychology **88**(2): 207-218.
- Beer, M. (1980). Organization Change and Development: A Systems View. Santa Monica, Ca, Goodyear Publishing.
- Behn, R. D. (1985). "Policy Analysts, Clients, and Social Scientists." Journal of Policy Analysis and Management **2**(Fall 1982): 88-100.
- Berge, Z. L. and L. Schrum (1998). "Linking Strategic Planning with Program Implementation for Distance Education." CAUSE/EFFECT Journal **21**(3).
- Bertalanffy, L. v. (1968). General system theory: Foundations, development, and application. New York, George Braziller.
- Boyatzis, R. E., S. S. Cowen, et al. (1995). Innovation in Professional Education. San Francisco, CA, Jossey-Bass Publishers.

Brewer, G. A., S. C. Selden, et al. (2000). "Individual Conceptions of Public Service Motivation." Public Administration Review **60**(3): 254-264.

Bryson, J. M. (1995). Strategic planning for public and nonprofit organizations. San Francisco, Jossey-Bass Inc.

Bullis, C. (2003). "Developing the Professional Army Officer: Implications for Organizational Leaders." Military Review(May-June 2003): 57-62.

Burns, J. M. (1978). Leadership. New York, Harper & Row.

Chisholm, R. F. (1996). "On the Meaning of Networks." Group & Organization Management **21**(2): 216-235.

Chisholm, R. F. and M. Elden (1993). "Features of Emerging Action Research." Human Relations **46**(2): 275-298.

Collins, J. C. and J. I. Porras (1994). Built to last: successful habits of visionary companies. New York, Harper Collins.

Cranton, P. and K. P. King (2003). Transformative Learning as a Professional Development Goal. New Perspectives on Designing and Implementing Professional Development of Teachers and Adults. K. P. King and P. A. Lawler. San Francisco, CA, Jossey-Bass Publishers.

Creswell, J. W. (1998). Qualitative inquiry and research design: Choosing among five traditions. Thousand Oaks, Sage Publications.

Cummings, T. G. and C. G. Worley (2001). Organizational Development and Change. Mason, Ohio, South-Western College Publishing.

Denzin, N. and Y. Lincoln (1998). Collecting and Interpreting Qualitative Materials. Thousand Oaks, Sage Publications.

Department of the Army, U. S. A. W. C. (2004). Catalogue for the Class of 2005. Carlisle Barracks, The United States Army War College: 99.

Donahue, S. F. (2004). Assessing Leadership Potential for the U.S. Army Future Force. Department of Command, Leadership and Management. Carlisle, Army War College: 49.

Drucker, P. F. (2002). Managing in the Next Generation. New York, St. Martins Press.

Eden, C. and C. Huxham (1996). Action Research for the Study of Organizations. Studying Organizations. S. R. Clegg and C. Hardy. Thousand Oaks, Sage.

Fernandez, S. (2005). "Developing and Testing an Interactive Framework of Public Sector Leadership: Evidence from the Public Education Arena." Journal of Public Administration Research and Theory **15**(2): 197-217.

Fischer, F. (2003). Reframing Public Policy. Oxford, Oxford University Press.

Frederickson, H. G. (1971). Toward a New Public Administration. Classics of Public Administration. J. M. Shafritz and A. C. Hyde. Pacific Grove, Brooks/Cole Publishing Company: 424-439.

Freedman, M. (2003). The Art and Discipline of Strategic Leadership. New York, McGraw-Hill Publishing.

Freeman, M. W. (2003). Distance Learning in the U.S. Army: Meeting the Readiness Needs of Transformation. Handbook of Distance Education. M. G. Moore and W. G. Anderson. Mahwah, NJ, Lawrence Erlbaum Publishers.

Garvin, D. A. (1993). "Building a Learning Organization." Harvard Business Review **July-August 1993**: 76-91.

Goleman, D., A. McKee, et al. (2002). Primal Leadership. Cambridge, MA, Harvard Press.

Gunawardena, C. N., P. L. Wilson, et al. (2003). Culture and Online Education. Handbook of Distance Education. M. G. Moore and W. G. Anderson. Mahwah, Lawrence Erlbaum Associates.

Hall, D. T. (2002). Careers In and Out of Organizations. Thousand Oaks, Sage.

Hamel, G. and C. K. Prahalad (1993). "Strategy as Stretch and Leverage." Harvard Business Review: 75-84.

Hanna, D. E. (2003). Organizational Models in Higher Education, Past and Future. Handbook of Distance Education. M. G. Moore and W. G. Anderson. Mahwah, NJ, Lawrence Erlbaum and Associates.

Heifetz, R. A. (2004). Leadership Without Easy Answers. Cambridge, MA, Harvard Press.

Heikkila, T. and K. R. Isett (2004). "Modeling Operational Decision Making in Public Organizations: An Integration of Two Institutional Theories." American Review of Public Administration **34**(1): 3-19.

Heineman, R. A., W. T. Bluhm, et al. (1995). World of the Policy Analyst: Rationality, Values, Politics. New York, McGraw-Hill.

- Hellriegel, D., J. W. Slocum, et al. (1995). Organizational Behavior. Minneapolis, West Publishing Company.
- Holzer, M. (1999). "Communicating Commitment: Public Administration as a Calling." Public Administration and Management: An Interactive Journal 4(2).
- Huilt, W. and J. Hummel (2003). Piaget's theory of cognitive development. Valdosta, Valdosta State University. **2005**.
- Huntington, S. P. (1981). American Politics. Cambridge, Harvard University Press.
- Jacobs, T. O. (1998). A Guide to the Strategic Leader Development Inventory. Carlisle Barracks, U.S. Army War College.
- Jacobs, T. O. (2002). Strategic Leadership: The Competitive Edge. Washington, D.C., National Defense University Press.
- Jacobs, T. O. and E. Jaques (1990). Measures of Leadership. K. E. Clark and M. B. Clark. West Orange, Leadership Library of America, Inc.
- Jaques, E. (1986). "The Development of Intellectual Capability: A Discussion of Stratified Systems Theory." The Journal of Applied Behavioral Science 22(4): 361-384.
- Jaques, E. and S. D. Clement (1991). Executive Leadership: A Practical Guide to Managing Complexity. Arlington, Carson Hall & Company Publishers.
- Jaques, E. and G. Stamp (1990). Development of Stratified Systems Theory for Possible Implementation in the U.S. Army. Alexandria, Army Research Institute: 50.
- Jaques, E. and G. Stamp (1995). Level and Type of Capability in Relation to Executive Organization. Alexandria, United States Army Research Institute: 97.
- Kanter, R. M. (1995). World class: thriving locally in the global economy. New York, Simon and Schuster.
- Katz, D. and R. Kahn (1978). The Social Psychology of Organizations. New York, John Wiley & Sons.
- Kilfoil, W. R. (2003). Strategic Planning in Distance Education. Washington, D.C., Distance Education and Training Council. **2004**.
- King, K. P. and P. A. Lawler (2003). Trends and Issues in the Professional Development of Teachers and Adults. New Perspective on Designing and

Implementing Professional Development of Teachers and Adults. K. P. King and P. A. Lawler. San Francisco, Jossey-Bass Publishers. **98**.

Krueger, R. A. (1994). Focus Groups: A Practical Guide for Applied Research. Thousand Oaks, SAGE Publications.

Lape, D. H. and P. H. Hart (1997). Changing the Way We Teach by Changing the College: Leading the Way Together. Building a Working Policy for Distance Education. C. Dillon and R. Cintron. San Francisco, Jossey-Bass Publishers.

Laubacher, R. and T. W. Malone (2003). Retreat of the Firm and the Rise of Guilds: The Employment Relationship in an Age of Virtual Business. Inventing the Organizations of the 21st Century. R. Laubacher, T. W. Malone and M. S. S. Morton. Cambridge, MIT Press.

Lewis, P. (1996). "Transformational Change Using Stratified Systems Theory." International Journal of Public Administration **19**(6): 801-826.

Likert, R. (1961). New Patterns of Management. New York, McGraw- Hill.

London, M. and T. J. Maurer (2004). Leadership Development. The Nature of Leadership. J. Antonakis, A. T. Cianciolo and R. J. Sternberg. Thousand Oaks, Sage Publications.

Macgregor, D. A. (2003). Transformation under fire: revolutionizing how America fights. Westport, Praeger.

Markessini, J. (1993). Strategic Leadership in a Changing World Order: Requisite Cognitive Skills. Alexandria, Army Research Institutes.

Martin, J. and P. Frost (1996). The Organizational Culture War Games: a Struggle for Intellectual Dominance. Studying Organizations. S. R. Clegg and C. Hardy. Thousand Oaks, Sage.

McDaniel, E. A. (2002). "Senior Leadership in Higher Education: An Outcomes Approach." Journal of Leadership & Organizational Studies **9**(2): 80.

Mintzberg, H. (1989). Mintzberg on Management. New York, The Free Press.

Mintzberg, H. (1994). The Rise and Fall of Strategic Planning. New York, The Free Press.

Mohrman, S. A. and T. G. Cummings (1989). Self-Designing Organizations: Learning How to Create High Performance. New York, Addison-Wesley Publishing Company.

Moore, M. G. and W. G. Anderson, Eds. (2003). Handbook of distance education. Mahwah, Lawrence Erlbaum Associates, Inc.

Moore, M. G. and G. Kearsley (1996). Distance Education: A Systems View. Belmont, Wadsworth Publishing Company.

Mosher, F. C. (1982). Democracy and the Public Service. New York, Oxford University Press.

Murray, M. (2000). "Transformation Leadership: Climate and Training Issues for the United States Army." Air Defense Artillery Magazine **21**.

O'Sullivan, E., G. R. Rassel, et al. (2003). Research Methods for Public Administrators. New York, Addison Wesley Longman, Incorporated.

Pacey, L. and E. Keough (2001). Public Policy, Institutional Structures, and Strategic Implementation. Handbook of Distance Education. M. G. Moore and W. G. Anderson. Mahwah, Lawrence Earlbaum Associates.

Paparone, C. R. (2004). "Deconstructing Army Leadership." Military Review **84**(1): 2-10.

Passmore, W. A. (1988). Designing Effective Organizations: The Sociotechnical Systems Perspective. New York, John Wiley & Sons.

Patton, M. Q. (1990). Qualitative evaluation and research methods. Newbury Park, Sage Publications.

Pettigrew, A. M. and E. M. Fenton, Eds. (2000). The Innovating Organization. Thousand Oaks, Sage.

Piaget, J. (1965). Psychology and philosophy. Scientific Psychology. B. Wolman. New York, Basic Books.

Piotrowski, S. J. and D. H. Rosenbloom (2002). "Nonmission-Based Values in Results-Oriented Public Management: The Case of Freedom of Information." Public Administration Review **62**(6): 643-657.

Prahalad, C. K. (1998). "Managing Discontinuities: The Emerging Challenges." Research Technology Management(May-June 1998): 14-22.

Quinn, R. E. (1988). Beyond rational management: Mastering the paradoxes and competing demands of high performance. San Francisco, Jossey-Bass.

Rahm, D. and B. J. Reed (1997). "Going Remote: The Use of Distance Learning, the World Wide Web, and the Internet in Graduate Programs of Public Affairs and Public Administration." Public Productivity & Management Review **20**(4): 459-474.

Reed, G., C. Bullis, et al. (2004). "Mapping the Route of Leadership Education: Caution Ahead." Parameters **34**: 46-60.

Rossi, P. H., H. E. Freeman, et al. (1999). Evaluation: a systematic approach. Thousand Oaks, Sage Publications.

Schuhmann, R. A., R. M. Cawley, et al. (2000). "The MPA And Distance Education: A Story As A Tool Of Engagement." Public Administration and Management: An Interactive Journal **5**(4).

Schwartzman, R. S. (2003). "Transforming Leader Development Through Lifelong Learning." Military Review **83**(3): 63-67.

Selznick, P. (1984). Leadership and administration. Berkeley, University of California Press.

Senge, P. and G. Carstedt (2003). Innovating Our Way to the Next Industrial Revolution. Inventing the Organization of the 21st Century. T. W. Malone, R. Laubacher and M. S. S. Morton. Cambridge, MIT Press.

Seth, A. (2003). "Distance learning: Bringing information to local government." Public Management **85**(3): A4.

Shambach, S., Ed. (2004). Strategic Leadership Primer. Carlisle Barracks, U.S. Army War College.

Shinseki, E. K. and F. Hesselbein (2004). Be, Know, Do: Leadership the Army Way. San Francisco, Jossey-Bass Publishers.

Simonson, M. and T. Buck (2003). Distance Education Policy Issues: Statewide Perspectives. The Handbook of Distance Education. M. G. Moore and W. G. Anderson. Mahwah, NJ, Lawrence Erlbaum Associates.

Stamp, G. P. (1988). Longitudinal research into methods of assessing managerial potential. Alexandria, U.S. Army Research Institute for the Behavioral and Social Sciences: 48.

Stogdill, R. M. and B. M. Bass (1974). Handbook of leadership: A Survey of Theory and Research. New York, Free Press.

Vinzant, J. C. and L. Crothers (1998). Street-Level Leadership: Discretion and Legitimacy in Front-Line Public Service. Washington, D.C., Georgetown University Press.

Watkins, R. and R. Kaufman (2003). Strategic Planning for Distance Education. Handbook of Distance Education. M. G. Moore and W. G. Anderson. Mahwah, Lawrence Erlbaum: 507-517.

Weick, K. E. and F. Westley (1996). Organizational Learning: Affirming an Oxymoron. Managing Organizations. S. R. Clegg, C. Hardy and W. R. Nord. Thousand Oaks, Sage.

Williams, P. E. (2003). "Roles and Competencies for Distance Education Programs in Higher Education Institutions." The American Journal of Distance Education **17**(1): 45-57.

Yukl, G. A. (1998). Leadership in Organizations. Englewood Cliffs, Prentice Hall.

Zaccaro, S. J. (1996). Models and Theories of Executive Leadership: A Conceptual/Empirical Review and Integration. Alexandria, U.S. Army Research Institute for the Behavioral and Social Sciences.

Zaccaro, S. J. (2001). The Nature of Executive Leadership. Washington, D.C., American Psychological Association.

Ziegenfuss, J. T. (1996). Relearning Strategic Planning: Lessons of Philosophy and Procedure. Lawrence, Allen Press.

Ziegenfuss, J. T. (2002). Organization Management and Problem Solving. Thousand Oaks, Sage.

Curriculum Vitae

Colonel Susan R. Myers

Department of Distance Education
United States Army War College, Box 473
122 Forbes Avenue
Carlisle, PA 17013
Susan.Myers@Carlisle.Army.Mil

(W) 717-245-3577
(H) 717-258-1536
FAX: 717-254-4570

Education

Ph.D. Penn State University, Harrisburg, PA: 2007
M.S., Strategic Studies, U.S. Army War College, Carlisle, PA: 2003
MBA, National University, San Diego, CA: 1990
B.S., Penn State University, University Park, PA: 1980

Publications and Presentations:

Dissertation: "Strategic Leader Cognitive Development through Distance Education" (2006). Middletown, PA: Penn State, Harrisburg.
"Strategic Leader Cognitive Development through Distance Education", International Leadership Association Conference, 1 November 2006
"Strategic Leader Cognitive Development", U.S. Army War College, Carlisle, PA 19 June 2006.
"Leadership Feedback and Stress Management", U.S. Army Military Academy, 29 April 2006.

Courses Taught

Strategic Leadership
Fundamentals of Strategic Thinking
Ethics
Organizational Behavior
Strategic Planning

Professional Employment

Professor, Leadership Studies, US Army War College, Carlisle, PA 2002-present
Commander, US Army Engineer Battalion, Ft. Leonard Wood, MO 2000-2002
Executive Officer, First Brigade, US Army 78th Division, Edison, NJ 1998-2000
Director, Base Realignment & Closure Office, Ft. Leonard Wood, MO 1997-1998
Chief, Total Army Schools System, Ft. Sill, OK 1994-1997
Student, Command & General Staff College, Ft. Leavenworth, KS 1992-1993
Project Manager, US Army Engineer District, Los Angeles, CA 1988-1990
Operations Officer, US Army Recruiting Battalion, Los Angeles, CA 1987-1988
Commander, C Company, 94th Engineer Battalion, Darmstadt, Germany 1985-1987
Plans Officer, US Army Engineer Division, Europe, Frankfurt, Germany 1983-1985
Platoon Leader & Executive Officer, Engineer Support Company, Ft. Hunter Leggett, CA, 1980-1983