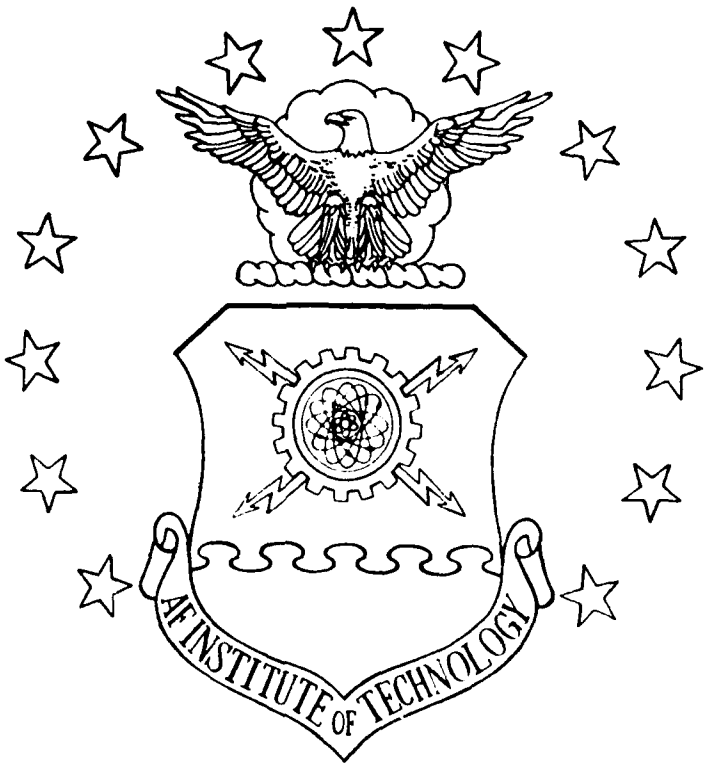

A LEADERSHIP DEVELOPMENT MODEL FOR UNITED STATES AIR FORCE CIVIL ENGINEERING COMPANY GRADE OFFICER

THESIS

Paul W. Somers, Captain, USAF

AFIT/GEM/DET/86S-25

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
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Wright-Patterson Air Force Base, Ohio

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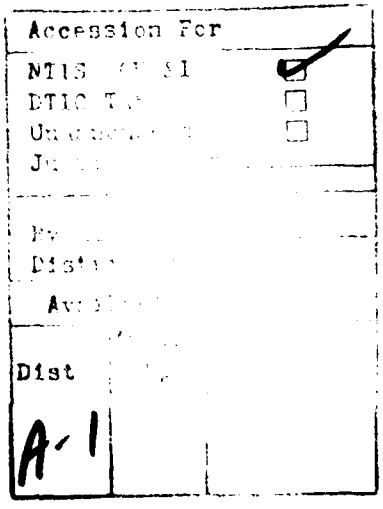

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THESIS

Presented to the Faculty of the School of Systems and Logistics
of the Air Force Institute of Technology
Air University
In Partial Fulfillment of the
Requirements for the Degree of
Master of Science in Engineering Management

Paul W. Somers
Captain, USAF

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Paul Wesley Somers

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Abstract

The officers of today, who will be our leaders of tomorrow, need to have the necessary leadership skills, abilities, and development to lead personnel in combat. This is to say that United States (U.S.) Air Force Civil Engineering (CE) must have leadership from its officers, particularly company grade officers, who in most cases are inexperienced in the ability to lead effectively.

This research first examined the definition of leadership, individual leadership traits desired in leaders, leadership principles practiced by leaders, and the concepts of the trait, behavioral, and contingency leadership theories. Second, this research examined the leadership traits and principles U.S. Air Force CE senior leaders perceive to be essential for CE company grade officers to possess and practice, and what they feel to be the strongest leadership qualities (traits and principles) which have enabled them to reach the position they are currently in. Third, this research examined leadership development programs and opportunities available to U.S. Air Force CE company grade officers. Fourth, this research examined the methods used by the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations, such as McDonnell Douglas, IBM, and General Motors, to develop leadership skills and abilities in company grade engineering officers and young managers, and whether

these methods can be tailored to meet U.S. Air Force CE needs. Finally, this research examined the leadership problems that slowed the accomplishment of exercise objectives in the Air Force CE portion of Exercise SALTY DEMO to see whether these problems can be prevented in future exercises or war.

The result of this research was the formulation of a leadership development model to serve as a guide to both U.S. Air Force CE company grade officers and senior leaders for fostering the leadership skills and abilities needed in CE company grade officers.

A LEADERSHIP DEVELOPMENT MODEL FOR UNITED STATES AIR FORCE CIVIL ENGINEERING COMPANY GRADE OFFICERS

I. Introduction

Chapter Overview

This chapter contains a general background on the potential leadership deficiencies among today's United States Air Force (USAF) Civil Engineering (CE) officers in the grade of captain and lieutenant, hereafter referred to as company grade officers. The career progression and potential leadership development opportunities of Air Force CE company grade officers are discussed. The purpose of this research and specific problem is stated, and the specific research objectives and questions are listed. Finally, the scope of and limitations to this research and organization of this report are outlined.

Background

The importance of leadership development of officers in the United States (U.S.) Air Force cannot be overemphasized. As stated by Colonel Larry L. Smith, Dean, School of Systems and Logistics, Air Force Institute of Technology, there needs to be continued and increased emphasis in the area of leadership and management development for Air Force officers (77). This and similar statements by U.S. Air Force leaders

underscore the fact that the officers of today, who will be our leaders of tomorrow, need to have the necessary leadership skills, abilities, and development to lead personnel in combat.

This need for leadership skills and abilities development is voiced by two senior leaders in the U.S. Air Force. First, the Honorable Verne Orr, past Secretary of the Air Force (February 1981 - November 1985), states in his second of three challenges that leaders will face as commanders:

> The second challenge will be to train combat leaders. The nature of warfare is changing as technology becomes more advanced; if we must fight a war, it is not likely to be like those we have already fought. Moreover, our combat-experienced leaders are beginning to retire; if we go to war, it may be with leaders having little or no combat experience. Will a master's degree in business administration, management, or even engineering guarantee a good combat leader? [70:53]

Second, Major General Clifton D. Wright, Jr., USAF, past Director of Air Force Engineering and Services, Headquarters (HQ) USAF, (September 1982 - February 1986), states in an article on readiness in Air Force CE, "Mobility teams that can perform anywhere at anytime are essential in today's environment. Not only must they be equipped and technically competent, they must be well led" (92:inside front cover). That is to say that Air Force CE must have leadership from its officers, particularly company grade officers, who in most cases are inexperienced in the ability to lead effectively in the accomplishment of CE's wartime mission. Although Air Force CE has both a peacetime and wartime mission, this

research analyzed only what is required for the wartime mission, hereafter referred to as the CE mission.

Each individual possesses certain leadership traits which, when coupled with the current leadership development education and training programs, are key to developing the leadership skills and abilities needed by U.S. Air Force CE company grade officers to lead CE personnel in accomplishing CE's mission. The question of whether or not Air Force CE company grade officers are receiving adequate opportunities to develop these leadership skills and abilities is an important one. According to General Charles A. Gabriel, past U.S. Air Force Chief of Staff (July 1982 - June 1986), "the mantle of leadership is not something awarded; rather it is earned through education, training, and experience" (37:inside front cover).

According to Brigadier General William C. Mundie, U.S. ARMY (USA), Commander of U.S. Army Administration Center, in his introduction to Leadership Monograph Series #7, A Progressive Model for Leadership Development by Stephen D. Clement:

> Leadership development is seen as a career long process of successive development which builds on previous education and experiences. It takes place in formal training, experience and the opportunity to serve as a leader. [17:i]

The goal of any individual should be to improve their effectiveness as a leader and to learn the absolutely critical role of leadership in their organization, so that the organization's mission can be carried out effectively (77).

From interviews conducted with U.S. Air Force CE senior leaders there are both perceived and observed leadership deficiencies among CE company grade officers in the area of leadership development opportunities and leadership skills and abilities (2;18;35;42;73). Major General George E. Ellis, USAF, Director of Air Force Engineering and Services, HQ USAF, stated during a personal interview that, "CE does have leadership development deficiencies among its company grade officers that need to be addressed and resolved now". General Ellis went on to say that "CE does not do a good job of developing leaders because we do not characterize leadership very well and we fail to recognize what is required for wartime leadership" (35). This failure to recognize what is required for wartime leadership surfaced during Exercise SALTY DEMO, an air base survivability exercise which was conducted at Spangdahlem AB, West Germany, from 29 April to 17 May 1985. According to both Colonel Darrell Bittle, USAF, Director Air Base Survivability, Systems Management Office at Eglin AFB Florida, and Lieutenant Colonel Paul McNickle, USAF, Chief Readiness Branch, HQ USAF/LEEXS, the leaders of the Air Force CE portion of the exercise failed to recognize wartime problems, such as shifting of personnel for work, food, and breaks, and what to do once these problems were recognized (10;66).

Purpose of This Research

This research focused on U.S. Air Force CE company grade officers because they are the foundation of the CE officer

corps. Air Force CE needs to breed officers that will be good wartime leaders because in a peacetime environment, combat experience is impossible. Therefore, Air Force CE needs to develop and improve its programs that will develop and foster the leaders that are required to accomplish CE's mission.

To accomplish the development and fostering of leaders required in Air Force CE, this research first examined the definition of leadership, individual leadership traits desired in leaders, leadership principles practiced by leaders, and the concepts of the trait, behavioral, and contingency leadership theories. Second, this research examined the leadership traits and principles U.S. Air Force CE senior leaders perceive to be essential for CE company grade officers to possess and practice, and what they feel to be the strongest leadership qualities (traits and principles) which have enabled them to reach the position they are currently in. Third, this research examined the leadership development programs and opportunities available to Air Force CE company grade officers to develop individual leadership skills and abilities necessary to prepare them to lead CE personnel in accomplishing CE's mission. Fourth, this research examined the methods used by the U.S. Army, U.S. Marine Corps (USMC), U.S. Navy (USN), and corporate organizations, such as McDonnell Douglas, International Business Machines (IBM), and General Motors, to develop leadership skills and abilities in company grade engineering officers and young managers, and whether these methods can be tailored to meet U.S. Air Force

CE needs. Fifth, this research examined the leadership problems that slowed the accomplishment of exercise objectives in the Air Force CE portion of Exercise SALTY DEMO to see whether anything can be done differently in Air Force CE company grade officer leadership development and training to prevent the same problems from occurring again in future exercises or war. Finally, this research developed a leadership development model to serve as a guide to both U.S. Air Force CE company grade officers and senior leaders for fostering the leadership skills and abilities needed in CE company grade officers in order for them to effectively handle the role of leading CE personnel in accomplishing CE's mission.

In addition to the statements quoted earlier by Major General Ellis, additional justification for this research was given by Lieutenant Colonel Paul W. Hains, III, USAF, past Chief of the Management Division, Operations Directorate, HQ Air Force Engineering and Services Center (AFESC). During and after his briefing to the Graduate Engineering Management students at the 16 January 1986 Executive Engineering Management Symposium, Lt Col Hains indicated that HQ AFESC was preparing to look at leadership and management development for CE officers in Project IMAGE (Innovative Management Achieves Greater Effectiveness) beginning in the latter part of 1986 (43). This was confirmed by Lt Col Hains during a telephone interview on 20 February 1986 (44). It is feasible that portions of this research could be used in the effort conducted by HQ AFESC.

Specific Problem

Most newly commissioned Air Force CE officers are placed in positions such as the design section in a CE Squadron that do not promote leadership development. According to Air Force Regulation (AFR) 36-23, Officer Personnel: Officer Career Development, Chapter 22, Civil Engineering--Career Progression Guide, a CE officer's initial assignment in the CE career field should be at base level in a position that requires the use of the academic background of the individual. It is not until approximately the fourth year of service that most officers are given the opportunity to become the head of a section, or put into a position of responsibility (22:119). This becomes critical when describing the typical scenario of the next war. Air Force CE company grade officers are not getting the required leadership development opportunities to handle such a situation. A potential scenario may involve the development of a bare base into an austere operating location within days, or even hours, after arrival of initial support personnel and equipment (48:1-2;90:24-25). As stated in Air Force Pamphlet (AFP) 93-7, The Prime Base Engineer Emergency Force (BEEF) Manager's Handbook, the need for quick response is due to the fact that:

> The threat of a "blitzkrieg" type conventional war has removed the luxury of time needed to allow vague planning concepts to work as they did in past conflicts. The conventional war of the future will be time as well as weapons and manpower intensive. The ability to move rapidly, set-up, and wage war is more decisive now than at any other time. Modern technology allows faster reaction; hence, time has become more crucial. [25:4]

The initial leadership development training for Air Force CE company grade officers comes from one of three commissioning sources--Air Force Reserve Officer Training Corps, U.S. Air Force Academy, or Officers Training School. This leadership development is further enhanced by leading a Prime BEEF Team, attending Squadron Officer School, attending The Professional Continuing Education short courses offered at The Air Force Institute of Technology School of Civil Engineering, and/or attending The Lieutenants' Professional Development Program offered by the Leadership and Management Development Center. From interviews with U.S. Air Force CE senior leaders and conversations with Air Force CE company grade officers, it is perceived that the leadership development opportunities for CE company grade officers are not adequate in developing the necessary leadership skills and abilities needed to lead CE personnel in accomplishing CE's mission (2;18;35;42;73). As an augmentee to the HQ Air Training Command Inspector General team during Mission Capability Inspections this perception was found to be a reality. When tasked to lead a Prime BEEF team on a five-day inspection deployment, I observed that most Air Force CE company grade officers could not effectively handle the task of accomplishing their deployment mission. This is because CE company grade officers are asked to perform CE's peacetime mission on a day-to-day basis, while trying to develop the leadership skills and abilities they need for wartime on a scheduled part-time basis. According to AFR 93-3, Special Civil Engineering Prime Base Engineer Emergency

Force (BEEF) Program, Chapter 3, Contingency Training, a Prime BEEF team member must participate in a home station field training exercise every 12 months and contingency training at Field 4, Eglin AFB, Florida, every 18 to 30 months, with the desired frequency every 24 months (24:23). Additional leadership development opportunities for Air Force CE company grade officers are needed to ensure that they develop into the leaders CE needs to effectively accomplish CE's mission.

Research Objectives

The overall objective of this research was to develop a leadership development model for CE company grade officers, given both the opportunities available to the officer and programs proposed by this research in order for them to be adequately prepared to accomplish CE's mission. The following specific research objectives of this research are (the chapter which addresses the objective is identified in parenthesis):

1. Develop a common definition of leadership that Air Force CE company grade officers can apply in accomplishing CE's mission. (Chapter III)

2. Determine which common leadership traits are desired in leaders and which leadership principles should be practice in order to become an effective leader. (Chapter III)

3. Determine which traits and principles U.S. Air Force CE senior leaders perceive to be essential for CE company grade officers to possess and practice respectively, and what they feel to be the strongest leadership qualities (traits and

principles) which have enabled them to reach the position they are currently in. (Chapter III)

4. Examine the trait, behavioral, and contingency leadership theories to determine which of the theory concepts Air Force CE company grade officers can use in accomplishing CE's mission. (Chapter III)

5. Examine the current leadership development programs and opportunities Air Force CE company grade officers have available to them to develop the individual leadership skills and abilities necessary to prepare them to lead CE personnel in accomplishing CE's mission. (Chapter IV)

6. Examine the methods used by the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations, such as McDonnell Douglas, IBM, and General Motors, to develop leadership skills and abilities in company grade engineering officers and young managers, and whether these methods can be tailored to meet U.S. Air Force CE needs. (Chapter IV)

7. Determine from leadership problems in the Air Force CE portion of Exercise SALTY DEMO whether anything can be done differently in Air Force CE company grade officer leadership development and training to prevent the same problems from occurring again in future exercises or war. (Chapter V)

8. Develop a leadership model to serve as a guide to both Air Force CE company grade officers and senior leaders for fostering the leadership skills required in CE company grade officers in order for them to effectively handle the role of leading CE personnel in accomplishing CE's mission. (Chapter VI)

Research Questions

In order to accomplish the specific objectives (identified in parenthesis in the following list) information was collected on the following research questions:

1. What is a common definition of leadership that U.S. Air Force CE company grade officers can apply in accomplishing CE's mission? (Objective 1)

2. What are the common leadership traits desired in leaders, which of the leadership principles should they practice, and how do these areas translate into the skills and abilities needed by U.S. Air Force CE company grade officers to lead personnel in wartime? (Objective 2)

3. Which leadership traits and principles do U.S. Air Force CE senior leaders perceive to be essential for CE company grade officers to possess and practice, and what do they feel to be the strongest leadership qualities (traits and principles) which have enabled them to reach the position they are currently in? (Objective 3)

4. Which concepts of the trait, behavioral, and contingency leadership theories can U.S. Air Force CE company grade officers use in accomplishing CE's mission? (Objective 4)

5. What are the current leadership development education and training programs and opportunities available to Air Force CE company grade officers to develop the individual leadership skills and abilities necessary to accomplish CE's mission and are these programs and opportunities adequate in developing these skills and abilities? (Objective 5)

6. What methods do the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations, such as McDonnell Douglas, IBM, and General Motors, use to develop leadership skills and abilities in company grade officers and young managers and can these methods be tailored to meet U.S. Air Force CE needs? (Objective 6)

7. From the leadership problems in the Air Force CE portion of Exercise SALTY DEMO, what can be done in CE's peacetime training environment to develop individual leadership skills and abilities needed by CE company grade officers in order to prevent the same problems from occurring again in future exercises or war? (Objective 7)

8. What type of leadership development model is required for U.S. Air Force CE company grade officers in order for them to effectively handle the role of leading CE personnel in accomplishing CE's mission? (Objective 8)

Scope of Research

This research is limited to the evaluation of peacetime leadership development opportunities of U.S. Air Force CE company grade officers. Manpower and fiscal constraints and the Air Force CE peacetime mission add a certain amount of bias to the perceptions mentioned earlier. However, the efforts of the Air Force CE community to develop realistic wartime scenarios, such as Prime BEEF exercises, rapid runway repair exercises, and Exercise SALTY DEMO, add some credibility to the perception of the Air Force CE senior

leadership and company grade officers. The bottomline is this: what leaders practice and learn in peacetime are the skills and methods they will use in wartime.

Organization of This Report

This report is designed so that it will meet both the academic requirements of a Masters thesis and the practical guidance for the leadership development of U.S. Air Force CE company grade officers. As presented here, it contains the customary thesis organization, complete system of documentation and supporting apparatus, and guidance that can be used by both U.S. Air Force CE company grade officers and senior leaders for fostering the leadership skills and abilities needed in CE company grade officers to effectively accomplish CE's mission.

II. Methodology

Chapter Overview

This chapter describes the methodology that was used to accomplish the research objectives and to answer the research questions listed in Chapter I. The population of interest and the methods which were used to collect the data are described.

Population of Interest

The population of interest for this research consisted of all U.S. Air Force CE company grade officers, grades O-1 (lieutenant) through O-3 (captain), who possess a primary Air Force Speciality Code of 55XX. This population was chosen because company grade officers in the U.S. Air Force are the foundation of the officer corps, not only in CE, but in the Air Force. According to Major Lance C. Brendel, USAF, Chief of Engineering and Services Officer Assignments, HQ Air Force Military Personnel Center, and Captain John E. Chiles, USAF, Staff Officer, Support Officer Force Management Branch, HQ Air Force Military Personnel Center, CE company grade officers make-up 74.7 percent of the 2271 assigned officers in CE and across the board company grade officers make-up 65.5 percent of the 92,915 assigned line officers (pilots, navigators, and support officers) in the U.S. Air Force (12;15). It is here, in the grade of captain and lieutenant, that the development of leadership skills and abilities in officers truly begins and is most prominent in setting the leadership foundation

that will be used by officers in day-to-day activities and in wartime. As mentioned in Chapter I, it is here among U.S. Air Force CE senior leaders and company grade officers that there are both perceived and observed leadership deficiencies in the area of leadership development opportunities and skills (2;18;35;42;73).

Methods of Data Collection

A combination of an extensive literature review and personal and telephone interviews (both formal and informal) were used to collect the necessary data to develop the leadership development model for U.S. Air Force CE company grade officers. This process took the following three major steps.

First, an exhaustive literature review was conducted in the following two areas to examine:

1. The definition of leadership, individual leadership traits desired in leaders, leadership principles practiced by leaders, and the concepts of the trait, behavioral, and contingency leadership theories.

2. The leadership development methods used by the U.S. Air Force, U.S. Army, U.S. Marine Corps, and U.S. Navy, and corporate organizations, such as McDonnell Douglas, IBM, and General Motors, to develop leadership skills and abilities in company grade engineering officers and young managers.

The U.S. Army, U.S. Marine Corps, and U.S. Navy were chosen because of the way they train company grade engineering

officers to be prepared for the respective wartime mission on a daily basis. For example, according to Captain Michael C. Anderson, USMC, Engineering Company Grade Ground Officer Monitor, HQ USMC, "leadership is a daily practice to Marine Corps engineering officers" (4).

The leadership development of young managers in corporate organizations was chosen because the U.S. Air Force has often been compared to a large corporation in the way it operates and functions as a whole. The three corporate organizations chosen, McDonnell Douglas, IBM, and General Motors, were randomly selected from a list of ten corporate organizations of comparable size and organizational structure. Appendix A shows the letters that were used to request information from the U.S. Army, U.S. Marine Corps, U.S. Navy, McDonnell Douglas, IBM, and General Motors.

From the literature review, the leadership development of U.S. Air Force CE company grade officers was compared to the leadership development of company grade engineering officers in the U.S. Army, U.S. Marine Corps, and U.S. Navy and the leadership and management development of young managers at McDonnell Douglas, IBM, and General Motors to see whether any of the latter methods could be tailored to meet Air Force CE needs. This comparision, coupled with the leadership traits and principles desired in and practiced by leaders, provided the base for the leadership development model for Air Force CE company grade officers described in Chapter VI.

Second, formal personal interviews with U.S. Air Force CE senior leaders were conducted in order to obtain the "view from the top" on leadership for Air Force CE company grade officers. These views included: leadership development problems in CE with respect to company grade officers, which traits and principles they perceive to be essential for CE company grade officers to possess and practice, what opportunities they are giving CE company grade officers to develop the leadership skills and abilities needed to accomplish CE's mission, and what they feel to be the strongest leadership qualities (traits and principles) which have enabled them to reach the current position they are in. The list of interview questions and interview participants is included in Appendix B.

In addition to these formal personal interviews, both informal personal and informal telephone interviews were conducted in order to obtain vital information on various areas throughout this research effort. Examples of the information obtained are manpower figures and particular points about leadership development in an organization.

Finally, a review of Exercise SALTY DEMO was accomplished to look at the leadership problems in the Air Force CE portion of the exercise that slowed the accomplishment of the exercise objectives and what can be done through leadership development and training for CE company grade officers to prevent the same problems from occurring again in future exercises or war. The analysis of this report ties in directly to the leadership

development programs and opportunities that are needed for Air Force CE company grade officers to effectively lead CE personnel in the accomplishment of CE's mission.

From the above three steps a leadership development model was developed to serve as guide to both U.S. Air Force CE company grade officers and senior leaders for fostering the leadership skills and abilities needed in CE company grade officers in order for them to effectively handle the role of leading CE personnel in accomplishing CE's mission.

III. Leadership Review

Chapter Overview

In order for this research to adequately develop a leadership development model for U.S. Air Force CE company grade officers, a leadership review must be conducted that defines leadership, identifies leadership traits and principles desired in and practiced by effective leaders, and examines the trait, behavioral, and contingency leadership theories to determine which concepts of these theories apply to Air Force CE company grade officers in accomplishing CE's mission.

This chapter accomplishes the leadership review through three steps. First, this chapter reviews various leadership definitions from both the military and corporate world to determine one common definition that Air Force CE company grade officers can apply in accomplishing CE's mission.

Second, this chapter identifies individual leadership traits and principles possessed and practiced by good leaders through two methods:

1. A review of past and present literature from the U.S. Air Force, U.S. Army, U.S. Marine Corps, U.S. Navy, and the corporate world as to which leadership traits and principles these organizations feel officers and managers should possess and practice.

2. Personal interviews with U.S. Air Force CE senior leaders as to which leadership traits and principles they feel CE company grade officers should possess and practice and

what they feel to be the strongest leadership qualities (traits and principles) which have enabled them to reach the position they are currently in.

Finally, this chapter reviews the concepts of the trait, behavioral, and contingency leadership theories to determine which concepts of these theories Air Force CE company grade officers can use to effectively accomplish CE's mission. The use and knowledge of these concepts is important in the leadership development of Air Force CE company grade officers in terms of what they must do and know as a leader in a wartime environment to accomplish CE's mission.

Definition of Leadership

The study of leadership has fascinated mankind and absorbed the energies of both practitioners and theorists for centuries. The question of what is leadership has been asked many times and to this day there is no universally accepted, single definition. AFP 35-49, Air Force Leadership, defines leadership as, "the art of influencing and directing people to accomplish the mission" (20:2). The Air Force Officers' Guide defines leadership as, "the art of imposing one's will upon others in such a manner as to command their respect, their confidence, and their whole-hearted cooperation" (55:146). Army Field Manual (FM) 22-100, Military Leadership, defines leadership as, "a process in which a soldier influences others to accomplish the mission" (30:44). The Marine Corps Pamphlet entitled Leadership Guide defines leadership as, "the sum of

those qualities of intellect, human understanding, and moral character that enables a person to inspire and to control a group of people successfully" (60:n.p.). The U.S. Naval Academy defines leadership in the book, Fundamentals of Naval Leadership, as:

> The art, science, or gift by which a person is enabled and privileged to direct the thoughts, plans, and actions of others in such a manner as to obtain and command their obedience, their confidence, their respect, and their loyal cooperation. [31:1]

In the book, Management of Organizational Behavior Utilizing Human Resources, Paul Hersey and Kenneth H. Blanchard define leadership as the, "interpersonal influence exercised in a situation and directed, through the communication process, toward the attainment of a special goal or goals" (51:68). In his book, Leadership and Exchange in Formal Organizations, T. O. Jacobs defines leadership as:

> An interaction between persons in which one presents information of a sort and in such a manner that the other becomes convinced that his outcomes (benefits/costs ratio) will be improved if he behaves in the manner suggested or desired. [53:230]

This list is by no means complete. Each person has their own definition of what leadership is and how to apply it to meet the mission.

By looking at the common thread between the above definitions, the people and the mission, a common definition of leadership is obtained that U.S. Air Force CE company grade officers can apply in accomplishing CE's mission:

> Leadership requires an individual who can direct others in such a manner as to obtain and command

their respect, confidence, and voluntary cooperation during times of normal and trying circumstances in order to accomplish the mission of the unit.

Individual Leadership Traits and Principles

While the above definitions differ in some respects, leadership is derived from one main area--an individual's ability to combine certain leadership traits and principles to accomplish the mission. Leadership traits are distinguishing internal characteristics of an individual which are essential to effective leadership and are the foundation to an individual's approach to the leadership situation of accomplishing the mission of the organization. Leadership principles are external rules and guides that serve as the framework for developing leadership traits in successful leaders (20:3,7;30:41). The leadership traits and principles identified by the U.S. Air Force, U.S. Army, U.S. Marine Corps, U.S. Navy, and the corporate world in the past and today are listed below.

There are four items that must be noted about these lists. First, what the U.S. Air Force calls leadership principles are called leadership factors by the U.S. Navy. Second, the U.S. Army adds three leadership attributes to their list of leadership traits and principles that a competent leader must "Be," "Know," and "Do" (30:49). Third, according to Warren Bennis, one of America's foremost management thinkers and practitioners, as a result of his survey of 90 of the most effective, successful leaders in the

nation; 60 from corporations and 30 from the public sector, there are four common areas of competence (leadership ability) evident to some extent in all 90 leaders (7:15,17). These areas of competence are added to the list of leadership traits and principles identified by the corporate world. Finally, there is only one list of leadership traits and principles for the U.S. Marine Corps. From personal correspondence with Lieutenant Colonel T. M. Gahan, USMC, Staff Officer at the Leadership Department, Education Center, Marine Corps Development and Education Command, the reason for this is twofold: "the goal and philosophy of Marine Corps leadership has never changed" and "the elements of Marine Corps leadership have never changed" (38).

1. U.S. Air Force

a. Leadership Traits:

(1) Traits listed in AFP 35-49, Air Force Leadership, 1985, [20:4-6]:

(a) Integrity
(b) Commitment
(c) Energy
(d) Decisiveness
(e) Selflessness
(f) Loyalty
(g) Truthfulness

(2) Traits listed in Air Force Manual (AFM) 50-3, Air Force Leadership, 1966, [19:41-44]:

(a) Integrity of character
(b) Sense of responsibility
(c) Professional competence
(d) Enthusiasm
(e) Emotional stability
(f) Humaneness
(g) Self-confidence
(h) Adaptability

(i) Decisiveness (initiative)
(j) Organization and management

b. Leadership Principles:

(1) Principles listed in AFP 35-49, Air Force Leadership, 1985, [20:7-14]:

(a) Know your job
(b) Know yourself
(c) Set the example
(d) Care for people
(e) Communicate information through the organization
(f) Educate people to do their job
(g) Equip your unit properly
(h) Motivate your subordinates
(i) Accept your responsibility as a leader

(2) Principles listed in AFM 50-3, Air Force Leadership, 1966, [19:46-48]:

(a) Know your job
(b) Know yourself and seek self-improvement
(c) Know your men and look out for their welfare
(d) Keep your men informed
(e) Set the example
(f) Be sure that the task is understood, supervised, and accomplished
(g) Train your men as a team
(h) Make sound and timely decisions
(i) Seek responsibility and develop a sense of responsibility among subordinates
(j) Employ your command according to its capabilities
(k) Take responsibility for your actions

2. U.S. Army

a. Leadership Traits:

(1) Traits listed in Army FM 22-100, Military Leadership, 1983, [30:120-125]:

(a) Integrity
(b) Maturity
(c) Will
(d) Self-discipline
(e) Flexibility
(f) Confidence
(g) Endurance
(h) Decisiveness

(i) Coolness under stress
(j) Initiative
(k) Justice
(l) Self-improvement
(m) Assertiveness
(n) Empathy or compassion
(o) Sense of humor
(p) Creativity
(q) Bearing
(r) Humility
(s) Tact

(2) Traits listed in Army FM 22-10, Leadership, 1951, [29:16-18]:

(a) Alertness
(b) Bearing
(c) Courage (physical and moral)
(d) Decisiveness
(e) Dependability
(f) Endurance
(g) Enthusiasm
(h) Force to impose one's will
(i) Humility
(j) Humor
(k) Initiative
(l) Integrity
(m) Intelligence
(n) Judgement
(o) Justice
(p) Loyalty
(q) Sympathy
(r) Tact
(s) Unselfishness

b. Leadership Principles:

(1) Principles listed in Army FM 22-100, Military Leadership, 1983, [30:42-43]:

(a) Know yourself and seek self-improvement
(b) Be technically and tactically proficient
(c) Seek responsibility and take responsibility for your actions
(d) Make sound and timely decisions
(e) Set the example
(f) Know your soldiers and look out for their well-being
(g) Keep your soldiers informed
(h) Develop a sense of responsibility in your subordinates
(i) Ensure that the task is understood, supervised, and accomplished

(j) Train your soldiers as a team
(k) Employ your unit in accordance with its capabilities

(2) Principles listed in Army FM 22-10, Leadership, 1951, [29:10]:

(a) Know your job
(b) Know yourself and seek self-improvement
(c) Know your men and look out for their welfare
(d) Keep your men informed
(e) Set the example
(f) Insure that the task is understood, supervised, and accomplished
(g) Train your men as a team
(h) Make sound and timely decisions
(i) Seek responsibility and develop a sense of responsibility among subordinates
(j) Employ your command in accordance with its capability
(k) Take responsibility for your actions

c. Leadership attributes: The U.S. Army emphasizes their list of leadership traits and principles by adding the "Be," "Know," and "Do" attributes of leadership. Army FM 22-100, Military Leadership, lists what a leader must do to meet these attributes [30:44-52]:

(1) "Be" attribute; your beliefs, values, and ethics are the foundation of your competence as a leader:

(a) Be committed to the professional Army ethic
(b) Possess professional character traits

(2) "Know" attribute; what a leader must know and understand about the four factors of leadership plus the human dimension:

(a) Know the four factors of leadership and how they affect each other (follower, leader, communication, and situation)
(b) Know yourself
(c) Know human nature
(d) Know your job
(e) Know your unit

(3) "Do" attribute; the action skills of a leader:

(a) Provide direction
(b) Implement
(c) Motivate personnel

3. U.S. Marine Corps

a. Leadership Traits listed in the Marine Corps User's Guide to Marine Corps Leadership, 1984, [88:Sec 204, 3]:

(1) Bearing
(2) Courage
(3) Decisiveness
(4) Dependability
(5) Endurance
(6) Enthusiasm
(7) Initiative
(8) Integrity
(9) Judgement
(10) Justice
(11) Knowledge
(12) Loyalty
(13) Tact
(14) Unselfishness

b. Leadership Principles listed in the Marine Corps User's Guide to Marine Corps Leadership, 1984, [88:Sec 204, 3]:

(1) Know yourself and seek self-improvement
(2) Be technically and tactically proficient
(3) Develop a sense of responsibility among your subordinates
(4) Make sound and timely decisions
(5) Set the example
(6) Know your Marines and look out for their welfare
(7) Keep your Marines informed
(8) Develop subordinate responsibility
(9) Ensure tasks are understood, supervised, and accomplished
(10) Train your Marines as a team
(11) Employ your command in accordance with its capabilities

4. U.S. Navy

a. Leadership Traits:

(1) Traits listed in Fundamentals of Naval Leadership by the Department of Leadership and Law, U.S. Naval Academy, 1984, [31:10]:

(a) Integrity
(b) Dependability
(c) Cooperation
(d) Loyalty
(e) Unselfishness
(f) Sense of humor
(g) Tact
(h) Ability to write well
(i) Ability to speak effectively
(j) Initiative
(k) Judgement
(l) Enthusiasm
(m) Creativity
(n) Decisiveness
(o) Endurance
(p) Self-discipline
(q) Courage (moral and physical)

(2) Traits listed in Naval Leadership by the U.S. Naval Institute, 1959, [91:138-157]:

(a) Loyalty
(b) Courage, physical and moral
(c) Honor, honesty, and truthfulness
(d) Faith [confidence]
(e) Religious faith
(f) Sense of Humor
(g) Modesty
(h) Self-confidence
(i) Common sense and good judgement
(j) Health, energy, and optimism
(k) Tact
(l) Initiative
(m) Self-control
(n) Fairness
(o) Communication skills

b. Leadership Factors:

(1) Factors listed in Fundamentals of Naval Leadership, 1984, [31:9]:

(a) Sets the example
(b) Learns to be a good follower
(c) Knows his job
(d) Establishes objectives and plans for their accomplishment
(e) Knows himself and seeks self-improvement
(f) Takes responsibility for his actions, regardless of their outcome

(g) Is consistent, but not inflexible
(h) Seeks responsibility and develops a sense of responsibility among his subordinates
(i) Treats every person as an individual, not a number
(j) Keeps his subordinates informed

(2) Factors listed in Naval Leadership, 1959, (91:12,149-157):

(a) Set a goal
(b) Professional knowledge of job
(c) Preparation and making use of spare time
(d) Ability to plan ahead
(e) Know yourself
(f) Know your men

5. Corporate World

a. Leadership Traits:

(1) Traits listed in U.S. News and World Report article, "Effective Leadership The Exception, Not The Rule," by Warren Bennis, 1983, (6:64):

(a) Ability to communicate
(b) Ability to align people behind them
(c) Positive self-regard
(d) Do not think about failure

(2) Traits listed in Personnel Journal article, "Developing Leadership Potential," by Marsha Sinetar, 1981, (76:194-195):

(a) Self-confident
(b) Responsible
(c) Assertive
(d) Flexible
(e) Structured and organized
(f) Energetic
(g) Enthusiastic
(h) Persevering
(i) Risk taker
(j) Independent

(3) Traits listed in the chapter "What's Wanted In Tomorrow's Leaders," by Frederic Macarow, in the book Leadership on the Job,

Guides To Good Supervision, 1957, (58:39-41):

(a) Integrity
(b) Dependability
(c) Self-confidence
(d) Forthrightness
(e) Objectivity
(f) Ability to communicate
(g) Self-assurance
(h) Generosity

b. Leadership Principles:

(1) Principles listed in Personnel Journal article, "Developing Leadership Potential," by Marsha Sinetar, 1981, (76:194-195):

(a) Knows what is going on; is aware of nuances in environment and others
(b) Organizes others, directs activities, delegates responsibility, and establishes the mood of the group
(c) Plans and follows through
(d) Projects into future, seeing consequences of decisions
(e) Handles abstract ideas and sees the whole picture
(f) Listens to, observes and recognizes the skills and abilities of others
(g) Supports members of the group; accepts responsibility; is able to determine appropriate behaviors and courses of action

(2) Principles listed in the chapter "What's Wanted In Tomorrow's leaders" by Frederic Macarow in the book Leadership on the Job, Guides To Good Supervision, 1957, (58:39-42):

(a) Close and frequent contacts with people
(b) Keep all interested parties informed
(c) Make sure that all employees receive fair, impartial, and considerate treatment
(d) Know what is going on
(e) Assume full responsibility for running your job
(f) Talking to people
(g) Job knowledge
(h) Setting a goal and driving toward it

c. Areas of competence: According to Warren Bennis, leaders in the business world possess four common areas of competence (leadership ability) (7:15-18):

(1) Management of attention; the ability to draw others to them.
(2) Management of meaning; to make dreams apparent to others and to align people to them.
(3) Management of trust; be reliable.
(4) Management of self; know one's skills and deploy them effectively.

These lists are not ranked in any order of importance nor do they represent a complete listing of leadership traits and principles. Science and theorists of the past have not been able to give us a formula for the combination of leadership traits and principles that will be successful in all situations. These lists show that the leadership traits and principles identified by the four military services and the corporate world as being essential to effective leadership have hardly changed over the test of time. The individuals writing the leadership traits and principles have changed, but what is required to be an effective leader has not. It is the primary aim of leadership to bring out the best capabilities of the people led by using the above leadership traits and principles and to direct the capabilities of the people being led in support of the assigned mission or goal of the unit or organization (55:146).

When preparing the U.S. Air Force for the future, most people think of the need for faster, better planes and missiles. However, according to General Gabriel, past USAF Chief of Staff:

> These things are important, but people are more important. The mission can't be accomplished by remote control--people have to do it and, to be successful, they must be well led. A legacy of strong, dynamic leadership was passed to us by the early air pioneers, making the challenge for us a big one. We who are leaders today have to develop and support the high quality people who will lead the Air Force into the 21st Century. [37:inside front cover]

Leadership Perceptions of U.S. Air Force Civil Engineering Senior Leaders

There is no cookbook approach to leadership, and all leaders are not cast in the same mold. Each individual has their own idea of which leadership traits and principles are more important. For example, according to General Gabriel, the three most important traits and principles that are expected in a good leader are integrity, job knowledge, and sensitivity (37:inside front cover).

With the fact that each individual has their own idea of which leadership traits and principles are more important, it was necessary to obtain the current views and thoughts of U.S. Air Force CE senior leaders as to which leadership traits CE company grade officers should possess and which principles they should practice in order to be effective leaders in accomplishing CE's mission. In addition, each Air Force CE senior leader was asked what they felt to be the strongest leadership qualities (traits and principles) which have enabled them to reach the position they are currently in.

First, Major General Ellis gave his "Nine Commandments" for being a success during a 24 January 1986 speech at the

Air Force Institute of Technology School of Civil Engineering to Class 86-B of the Introduction to Base Civil Engineering course, MGT 001 (34):

1. Thy shalt be active (do something more then your job).
2. Thy shalt stay in touch with current events.
3. Thy shalt generate mistakes.
4. Thy shalt have a value system (your own and one for the Air Force).
5. Thy shalt know how to communicate.
6. Thy shalt know your job.
7. Thy shalt know your bosses job.
8. Thy shalt make your bosses job easier.
9. Thy shalt have fun.

These "Nine Commandments" can be easily translated into the list of traits and principles listed earlier.

During a personal interview with Major General Ellis he stated that the key leadership qualities enabling him to reach his present position are: knowledge of the business, his personality to work and play hard, his self-confidence in not being afraid to fail, and his self-assurance in his "go for it" attitude (35).

Second, Brigadier General Joseph A. Ahearn, USAF, past Deputy Chief of Staff (DCS) Engineering and Services, HQ United States Air Forces in Europe (USAFE), now Deputy Director Air Force Engineering and Services, HQ USAF, stated during a presentation to the Graduate Engineering Managment students at the 3 March 1986 Executive Engineering Management

Symposium that officers should develop the following framework for thinking, or in General Ahearn's words a "Chain of C's" (1):

1. Competence - Know your job.
2. Commitment - To yourself, people, and job.
3. Care - For goals and people.
4. Cooperation - Gentlepersonship; allows you to work well with people.
5. Character - What you stand for.
6. Credibility - Who to go to when things get tough.
7. Christian - Religious beliefs.
8. Commune - Set of values.

General Ahearn went on to say that you must know yourself, listen to others, take care of your people, have a warrior development, and have a rich experience and educational base (1). When General Ahearn was asked which leadership qualities enabled him to reach his present position, he referred to the "Chain of C's" listed above (2).

Third, Brigadier General David M. Cornell, USAF, DCS Engineering and Services, HQ Air Force Logistics Command (AFLC), stated that CE company grade officers should go after the really tough jobs, have the ability to listen, be "100 percent on board" (i.e. totally dedicated), accept what comes in the way of assignments, and do the best you can everyday. When General Cornell was asked which leadership qualities enabled him to reach his present position, he stated: get in the main stream, get the tough jobs (i.e. go out and seek

them), get interested in your work, and accept the assignments that come your way (18).

Fourth, Colonel David M. Brooks, USAF, DCS Engineering and Services, HQ Air University (AU), stated that CE company grade officers should have a "sponge attitude" (initiative) to absorb everything they can in getting to know the job and to have the attitude to do anything asked of them. When Colonel Brooks was asked which leadership qualities enabled him to reach his present position, he stated: be a sponge, do the jobs no one else would do, know what your boss wants and work toward that end, and it is important to move at opportunities to get the job, not the location (13).

Finally, when Brigadier General John R. Harty, USAF, past DCS Engineering and Services, HQ Military Airlift Command (MAC), now DCS/Engineering and Services, HQ USAFE, Brigadier General Roy M. Goodwin, USAF, DCS Engineering and Services, HQ Tactical Air Command (TAC), Colonel James W. Rosa, USAF, Deputy DCS Engineering and Services, HQ Pacific Air Forces (PACAF), and Colonel William R. Sims, USAF, past DCS Engineering and Services, HQ Air Force Systems Command (AFSC), were interviewed each had the same ideas as to which leadership traits CE company grade officers should possess, which principles they should practice, and which leadership qualities enabled them to reach their present position. The leadership traits and principles and what enabled them to reach their present position are: know communication skills, know your job, integrity, display initiative, air of

confidence, commitment, care of people, and team effort (42;47;73;75).

The list of leadership traits and principles identified by Air Force CE senior leaders to be essential for CE company grade officers to possess and practice is similar to a 1943 list of traits and principles identified by Brigadier General Hugh J. Casey, USA. General Casey, Chief Engineer in the southwest Pacific Area during World War II, identified the following 18 leadership traits and principles that military engineers should possess and practice (14:67-71):

1. Energy (both physical and mental)
2. Initiative
3. Imagination
4. Intelligence
5. Basic fundamentals (reduce problem to basic fundamentals)
6. See the big picture
7. Proper sense of balance in terms of what men and equipment can and cannot do
8. Look after your men
9. Combat capable (be ready for combat by training)
10. Work (accomplish task and plan ahead)
11. Sense of humor
12. Improvise when needed
13. Cooperation with other units
14. Advance planning
15. Work should be planned (this is a follow-up to advance planning)

16. Professional and technical knowledge (know your job)

17. Composure (set the standard or example)

18. Active reconnaissance (know area around you)

The traits and principles identified by General Casey are just as applicable today as they were then. This can be seen by comparing the list General Casey identified with the traits and principles identified by Air Force CE senior leaders.

Leadership Theories

The definitions of leadership and individual leadership traits and principles described above blend into different concepts of leadership theories that Air Force CE company grade officers, as leaders, can use to effectively accomplish CE's mission. The use of these concepts is important in the leadership development of Air Force CE company grade officers in terms of what they must do and know as a leader in a wartime environment to accomplish CE's mission. According to Ralph M. Stogdill, in his Handbook of Leadership, "theories of leadership, if such can be said to exist, attempt to explain (1) the factors involved in emergence of leadership or (2) the nature of leadership" (80:17).

With all the attempts to develop leadership theories over the past century, three basic approaches to explaining what makes an effective leader have surfaced as probably the most studied and used. These approaches are: trait theories, behavioral theories, and contingency theories (41:294;72:113).

The first approach, trait theory, focuses on leadership in terms of personality and character that is believed to be inherent in the individual. The leader is endowed with superior leadership qualities such as intelligence, charisma, enthusiasm, integrity, self-confidence, and decisiveness that separate the individual as a leader from a non-leader (72:113;80:17). As T. O. Jacobs points out in his book, Leadership and Exchange in Formal Organizations, "the logical assumption underlying this kind of approach was that there were leader characteristics which could be identified, and would be successful in separating leaders from non-leaders" (53:6). In other words, "leaders are born: you either have it or you do not" (72:114). The problem with this theory is that after more than fifty years of research, most researchers cannot agree on a list of specific traits that can be used to separate leaders from non-leaders (41:294;51:68).

In trying to understand leadership better, researchers slowly shifted from the trait theory to the behavioral theory. In this theory the leader is classified by behavioral patterns or how the leader behaves in accomplishing individual leadership tasks in the accomplishment of the unit mission (41:296). The underlying assumption is that an individual can be taught leadership based on specific behaviors that identify leaders (72:114). Although this theory seemed to be headed in the right direction in determining what makes a good leader, it has not been totally successful. According to Stephen P. Robbins in his book, Essentials of Organizational Behavior,

"there has been very little success in identifying consistent relationships between patterns of leadership behavior and group performance". Stephen Robbins went on to say, "what was missing [in the behavioral theory] was consideration of the situational factors that influence success or failure" (72:117).

The third approach, contingency theory, focuses on the situational influences that leaders face in making decisions, which seem to be missing from the trait and behavioral theories. There are four approaches to the contingency theory that attempt to isolate key situational variables in an effort to determine what effects leader efectiveness. These approaches are The Autocratic-Democratic Continuum Model, The Fiedler Model, The Path-Goal Model, and The Vroom-Yetton Model (72:118).

The Autocratic-Democratic Continuum Model looks at two extreme positions of leadership style: 1) the leader makes the decision and the subordinates are expected to carry it out and 2) the subordinates share in the decision making process. The Fiedler Model, developed by Dr. Fred Fiedler, looks at leader-member relations, task structure of jobs, and position power of the leader. The Path-Goal Model, developed by Robert House, looks at personal characteristics of the subordinates and environmental pressures and task demands. The Vroom-Yetton Model, developed by Victor Vroom and Phillip Yetton, looks at relating leadership behavior and participation to the decision making process (72:118-124).

Even though these four approaches examine different situational variables, they all conclude with key situational

variables such as the leader as an individual, group organization and norms, and the situation at hand that affect the effectiveness of the leader in making leadership decisions (72:118). This indicates that in the leadership decision making process the leader will use a combination of the three leadership theory concepts described above to include: the individual leadership traits of the leader, the behavior of the leader and the group in accomplishing the mission, and the task which must be accomplished.

It is for this reason that when Air Force CE company grade officers are confronted with making leadership decisions they will need to blend the concepts of the three leadership theories described above in order to effectively accomplish CE's mission. This is evident by the list of leadership traits and principles identified earlier by Air Force CE senior leadership. These leadership traits and principles parallel the concepts of the trait and behavioral theories in terms of which leadership traits and principles a leader should possess and practice to be effective in accomplishing CE's mission. This indicates that even though situational factors play a big role in the leadership decision making process the need for individual leadership traits and how to behave in accomplishing individual leadership tasks is important in the overall accomplishment of CE's mission.

An example of how the concepts from all three leadership theories will be used by Air Force CE company grade officers is in the environment these officers will be faced with in

wartime. With a wartime scenario of rapid runway repair, force beddown, and war damage repair Air Force CE company grade officers never know beforehand exactly what the situation will be or how the personnel being led will react. Therefore, the leadership decisions of each Air Force CE company grade officer have to be based on individual experience and ability, the personnel with the leader, reaction of the leader and the group to the situation, and the situation at hand.

Knowledge of these three leadership theory concepts is an important factor in the leadership development process of Air Force CE company grade officers in terms of what they must do and know as a leader in a wartime environment to accomplish CE's mission. This knowledge is used in the foundation for the leadership development model for U.S. Air Force CE company grade officers developed in Chapter VI.

Summary

The information obtained in this chapter will be instrumental in the development of the leadership development model for U.S. Air Force CE company grade officers developed in Chapter VI. This chapter showed four key points in obtaining the information that will be used in the foundation for this leadership development model.

This chapter first showed that there is no universally accepted single definition of leadership. However, if the common threads of the definitions are put together (i.e. the

people and the mission), a common definition of obtaining the voluntary cooperation of others to accomplish the mission under any circumstances is achieved. Second, this chapter showed that there is no common list of leadership traits that a leader should possess nor is there a common list of leadership principles that a leader should practice in order to be an effective leader. Third, this chapter showed that the list of leadership traits and principles identified by the U.S. Air Force, U.S. Army, U.S. Marine Corps, U.S. Navy and the corporate world in the past are virtually the same ones used today and have remained unchanged over the test of time. The leadership traits and principles identified by U.S. Air Force CE senior leaders go hand-in-hand with the leadership traits and principles listed by the military and corporate world and the concepts of the trait and behavioral theories. Finally, this chapter showed that depending on the leader as an individual, the group of personnel being led, and the situation at hand, the leader will use the leadership traits and principles that work best for them plus a combination of the trait, behavioral, and contingency leadership theory concepts in order to accomplish CE's mission.

By applying the information obtained in this chapter with the leadership development programs and opportunities currently available to Air Force CE company grade officers, the leadership development model for U.S. Air Force CE company grade officers developed in Chapter VI, and the recommendations of this research Air Force CE company grade officers should be

able to develop the leadership skills and abilities needed for them to effectively lead CE personnel in accomplishing CE's mission.

IV. Leadership Development in the Military and Corporate Organizations

Chapter Overview

This chapter first examines the current leadership development education and training programs and opportunities available to U.S. Air Force CE company grade officers to develop the individual leadership skills and abilities necessary to accomplish CE's mission and whether these programs and opportunities are adequate in developing these skills and abilities. Second, this chapter examines the methods used by the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations, such as McDonnell Douglas, IBM, and General Motors, to develop leadership skills and abilities in company grade engineering officers and young managers.

This examination of the four military services and three corporate organizations includes: the mission statements of the engineering functions in each of the four military services and corporate organizations, engineering officer and manager career progression in the four services and the three corporate organizations, and the leadership development education and training programs of the military services and corporate organizations. Even though each military service and corporate ogranization has professional leadership development programs for all ranks from lieutenant to general and all management levels from first line manager to executive, this chapter will only examine the professional

schools for company grade officers and young managers or approximately the first twelve years of an individual's career.

Finally, this chapter compares the methods used by the U.S. Air Force to develop leadership skills and abilities of CE company grade officers to the methods used by the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations such as McDonnell Douglas, IBM, and General Motors, to develop leadership skills in company grade engineering officers and young managers. This comparison will be used to determine if any of the methods used by the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations can be tailored to meet U.S. Air Force CE needs.

Leadership Development of U.S. Air Force Civil Engineering Company Grade Officers

U.S. Air Force CE needs to have company grade officers who possess the necessary leadership skills and abilities in order for them to effectively lead CE personnel in accomplishing CE's mission. As such, when an officer is commissioned into Air Force CE the individual is given a 55XX Air Force Speciality Code and is assigned in one the three following areas: a CE unit, a staff level position, or a Rapid Engineer Deployable, Heavy Operational Repair Squadron, Engineer (RED HORSE) squadron.

Civil Engineering Mission. According to Lieutenant Colonel Paul W. Hains, III, past Chief of the Management Division, Operations Directorate, HQ Air Force Engineering and

Services Center, in his Air Force Engineering and Services Quarterly article entitled "IMAGE" the overall mission of U.S. Air Force CE is:

> Provide the necessary assets and skilled personnel to prepare and sustain global installations as stationary platforms for the projection of aerospace power in peace and war. [45:8]

U.S. Air Force CE company grade officers must be prepared to lead CE personnel in the accomplishment of this mission. As stated in Chapter I, it is perceived by U.S. Air Force CE senior leaders and company grade officers that the leadership development opportunities for CE company grade officers are not adequate in developing the necessary leadership skills and abilities needed to lead CE personnel in accomplishing this mission (2;18;35;42;73).

The Air Force CE mission is accomplished through a combination of two methods. The first method is through Prime BEEF. This is a program that organizes civil engineering personnel for worldwide direct and indirect combat support. This support is accomplished by a series of specialty Prime BEEF teams that provide personnel from every CE specialty. According to AFR 93-3, Special Civil Engineering, Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program, each team has a separate mission based on a team structure that includes the following capabilities (24:14):

1. Rapid runway repair.
2. Force beddown of personnel.
3. Operations and maintenance of base facilities.

4. Emergency and follow-on war damage repair.

5. Fire suppression and crash rescue operations.

6. Heavy equipment operations.

The second method is through RED HORSE, the Air Force equivalent to the U.S. Navy SEABEES. AFR 93-9, Civil Engineering RED HORSE Squadrons, states the mission of RED HORSE is to, "provide a highly mobile, rapidly deployable civil engineering response force that is self-sufficient for limited periods of time" (21:6). As with Prime BEEF, RED HORSE is made of separate specialty teams that have the following mission objectives:

> 1. Performs heavy damage repair required for recovery of critical Air Force facilities and utility systems required for aircraft launch and recovery that have been subjected to enemy attack or natural disaster.
>
> 2. Accomplishes required engineering support necessary for the beddown of weapon systems, and the installation of critical utility and support systems required to initiate and sustain operations, especially in austere, bare base environments.
>
> 3. Is manned, equipped, and trained to conduct heavy engineering operations as independent self-sustaining units (with resupply of consumables) in remote hostile locations. [21:6]

According to AFR 93-9, Civil Engineering RED HORSE Squadrons, the capabilities of a RED HORSE Squadron include [21:10]:

1. Airfield lighting installation.

2. Communications.

3. Concrete mobile operations.

4. Explosive demolition operation.

5. Expedient aircraft arresting barrier installation.

6. Materials testing.

7. Quarry operations.

8. Rapid runway repair.

9. Revetment erection.

10. Water well drilling

11. Disaster preparedness mobility team.

12. Bare base installation.

Civil Engineering Officer Career Progression. One of the ways in which an Air Force CE company grade officer can develop individual leadership skills and abilities is through career progression. AFR 36-23, Officer Personnel: Officer Career Development, Chapter 22, Civil Engineering--Career Progression Guide, describes career progression as phases of development with transition points that provide "a wide variety of experiences at various levels of command" (22:119). Here the CE officer is given different levels of responsibility and leadership training and development through professional military education in order to develop the leadership skills and abilities needed by the officer to accomplish CE's mission. According to an Occupational Survey Report entitled Officer Professional Military Education Curriculum Validation Project, completed by the USAF Occupational Measurement Center, Randolph AFB, Texas, in August 1980, the analysis of paygrade specific data of officers in all career fields, within paygrades O-1

(lieutenant) through O-6 (colonel) revealed the following:

> The manner in which officers' leadership, management, and communicative task involvement increases as paygrade increases. Generally, the data show that the percentage of officers in supervisory positions, the percentage of officers assigned to higher organizational levels, and the percent of total job time spent on leadership, management, and communicative tasks all increase from the O-1/O-2 level to the O-6 level. [23:iv]

The type of increase for officers in supervisory positions and the total job time spent on leadership tasks as the paygrade increases can be seen in the career progression outline for Air Force CE officers described below.

AFR 36-23, Officer Personnel: Officer Career Development, Chapter 22, outlines the CE career progression for officers in the 55XX career field as follows:

1. Initial Phase (0 through 3 years). The first assignment for CE officers should be a base assignment working in the specific academic background of the individual, which is usually in the engineering section. This offers very little, if any, use of leadership skills and abilities since the individual is usually working under a supervisor. The training and development they receive comes from the Air Force Institute of Technology School of Civil Engineering short courses and by taking Squadron Officer School by correspondence (22:119).

2. Intermediate Development Phase (4 through 11 years). During this phase, the officer should be rotated through as many positions as possible within the CE organization in order to acquire overall experience. In addition, a staff

assignment at a major command should be scheduled during this time. Training should include completion of Squadron Officer School, taking Air Command and Staff College either in residence or by correspondence, and a graduate degree, possibly through the Air Force Institute of Technology (22:119-120).

3. Advanced Development Phase (12 through 17 years). The assignments should consist of rotating the officers into different echelons of command, different major commands, and different geographical areas. Training should consist of completion of Air Command and Staff College, Air Force Institute of Technology School of Civil Engineering short courses, and taking a Senior Service School by correspondence (22:120).

4. Staff Phase (18 through 22 years). During this phase CE officers should be assigned to positions with increased managerial responsibilities. This includes assignments at both major command and HQ USAF levels. If the officer is not selected to attend a Senior Service School, the training should consist of senior level professional education through correspondence or by taking local seminar programs (22:120).

5. Executive or Leader Phase (23 years plus). During this phase the officer occupies key managerial positions such as: Base Civil Engineer at base level, a command Civil Engineer at major command level, or a division chief at HQ USAF level (22:120).

As this outline indicates it is not until the fourth year of service that a CE company grade officer has the opportunity to head a section, or hold a position of responsibility. The general exception to this is if the initial assignment for a CE company grade officer is to a RED HORSE Squadron. Here the individual gets leadership development from day one in the way of leading a RED HORSE team on a daily basis or being given the responsibility of a job from conception to completion. It should be noted that with only four RED HORSE Squadrons in U.S. Air Force CE there are not enough of these initial leadership development opportunities to go around.

AFR 36-23, Officer Personnel: Officer Career Development, Chapter 22, only mentions once the need for training and the readiness of CE forces to respond to contingency situations (22:118). According to Major General Ellis, the first of three things that Air Force Engineering and Services needs to focus on is, "prepare to go to war" (34). With readiness being CE's number one priority, it is vital that what is required in the area of leadership development for Air Force CE company grade officers to effectively lead CE personnel in accomplishing CE's mission be included in the career progression of these officers. As discussed in Chapter VI in the development of the leadership development model for Air Force CE company grade officers, it is extremely important to start the leadership development of CE company grade officers before the fourth year of active duty. It needs to begin at day one.

Leadership Education and Training Programs and Development Opportunities. The development of the leadership skills and abilities needed by Air Force CE company grade officers in the early years of a career to develop a strong leadership foundation required to effectively lead CE personnel in accomplishing CE's mission is an interesting challenge. This is because young lieutenants in Air Force CE who are fresh from one of three commissioning sources, the U.S. Air Force Academy, Officer Training School, or Air Force Reserve Officers Training Corps, are usually placed in the design section of a CE Squadron and are rarely given the opportunity to develop personal leadership skills and abilities except during yearly Prime BEEF team training exercises. Therefore, how does the U.S. Air Force provide education and training to develop the leadership skills and abilities needed by CE company grade officers to effectively accomplish CE's mission?

In the U.S. Air Force, CE company grade officers without prior civilian or enlisted work experience have two major avenues for professional leadership training and development: the commissioning sources and professional military education, in addition to the daily leadership opportunities that may be provided by the job or Prime BEEF. These two avenues present formal programs for leadership training and development, but the major drawback is the period between the officer's exposure to the training and the entry to active duty in the case of the commissioning sources, and the timing of the

professional military education training in respect to the officer's career progression (36:72).

The initial development of leadership skills and abilities for Air Force CE company grade officers comes from one of the three commissioning sources mentioned earlier. These sources of commissioning offer leadership and management education in different formats depending on the curriculum of the program, and leadership development in the form of drill and ceremonies and traditional military discipline in training cadets.

Each of these programs has their advantages, but each shares problems of timing. First, the officer candidate is relatively immature when the training is received. Second, usually too much time has elapsed between the receipt of the training and the first active duty assignment. According to Major Richard H. Estes, in his Air University Review article entitled "Mission Critical: The Junior Officer-Senior Noncommissioned Officer Relationship," the curriculum of the three programs may vary to some extent, but they offer similar content that includes: "case studies of management situations in the field, some exposure to experienced enlisted supervisors, and general leadership training" (36:72).

Although the three commissioning sources are sound in the approach to leadership and management development, they are not without problems. Even though the Reserve Officers Training Corps program has a standardized curriculum and an instructor corps to provide excellent insights to leadership training, a major disadvantage with the program is that it is

offered at hundreds of colleges and universities in courses of varying length and as many interpretations to the course material as there are schools and instructors. The other two commissioning sources do not have the problem of standardization because of the single location of each of the sources. Another problem with the Reserve Officers Training Corps is one that is shared by the U.S. Air Force Academy and that is in the area of limited contact with enlisted personnel from a supervisory point of view. As Major Estes states about cadets at the U.S. Air Force Academy:

> The somewhat harsh leadership techniques used in dealing with underclassmen who are essentially the same age may have a negative effect if new lieutenants attempt to transpose them directly to the field where older subordinates may tend to be somewhat less subservient. [36:72]

Not having the problems of the Reserve Officers Training Corps program and the U.S. Air Force Academy, Officer Training School offers two advantages over the other two sources. First, leadership training and development is compressed into a 90 day period immediately preceeding commissioning. Second, these "ninety-day wonders" are usually exposed to prior enlisted personnel during the training period. The biggest drawback to Officer Training School is the condensed curriculum and the "fire hose" approach to leadership training and development (36:72).

The three Air Force commissioning programs mentioned earlier as being sound in the approach to leadership and management development should be viewed only as orientation

programs for Air Force CE company grade officers with more advanced leadership development to follow once the officer comes on active duty (36:72).

The thrust of U.S. Air Force professional leadership and management training and development for CE company grade officers is through professional military education, which includes Squadron Officer School and the Lieutenants' Professional Development Program offered by the Leadership and Management Development Center at Maxwell AFB, Alabama.

Squadron Officer School is the first school in the Air Force three tier professional military education program in which first lieutenants and captains with less than seven years of active duty are eligible to attend. The Squadron Officer School course covers eight and one-half weeks and is offered five times a year. Squadron Officer School is offered through both the resident program and correspondence program which is almost immediately available. The research in this thesis focused on the resident program because this is where the most experience can be gained by CE company grade officers. According to Major Estes, "many educators agree that correspondence programs are not as effective as resident programs" (36:73). The Squadron Officer School Curriculum Catalog states the mission of Squadron Officer School is, "to provide for the professional development of company grade officers so they can better perform and value their roles in the conduct and support of combat operations and other Air Force missions" (79:29). This mission statement is echoed in

the Squadron Officer School educational philosophy:

> 1. Squadron Officer School is concerned with educating Air Force lieutenants and captains to meet leadership needs of the Air Force. In the professional development of these officers, SOS seeks to develop the whole person. Through the realms of physical, mental, and ethical disciplines, SOS seeks to guide officers toward their maximum potential as leaders in the Air Force.
>
> 2. All officers must solve problems systematically and logically, communicate clearly, apply sound techniques of leadership and management, and be articulate in the force employment of aerospace power. These are specific abilities and knowledge that SOS seeks to increase in officers who attend the school. SOS also recognizes a guiding principle which is stated as the school motto: "Think--Communicate--Cooperate." The skills implied by this theme are essential if a leader is to acccomplish the mission. [79:31]

Of the four areas taught at Squadron Officer School: Officership, Force Employment, Leadership in the Air Force, and Communication Skills, Leadership in the Air Force makes up 43 percent of the total 261 academic instruction curriculum hours. In the Leadership in the Air Force portion of the curriculum there are four areas that are taught: The Leader, The Leader and The Group, The Leader's Techniques, and Group Development. These four areas are taught through lecture, seminar, and field activities to include sports activities and Project X (79:37). According to the area description of Area Three listed in Book 1, Leadership in the Air Force:

> The leadership area gives you [the company grade officer] the opportunity to develop a more accurate self concept and gain an appreciation for how various theories and techniques can enhance your ability to lead, manage, and follow in the Air Force. This curriculum area builds upon and adds to our [SOS] discussion of "officership." You will examine leadership, management, and followership

> techniques, and then apply these techniques in situations similar to those encountered by company grade officers. In addition, the leadership area illustrates how communication skills enhance your leadership in the process of force employment. [78:1]

The leadership training and education provided by Squadron Officer School is a valuable foundation on which to build as officers move through their careers. However, the most prominent problem with this portion of the leadership development cycle is that most officers do not attend Squadron Officer School until they have at least four years of commissioned service or they do not attend at all. According to Captain David L. Herres, Curriculum Developer for Area Three Leadership at Squadron Officer School, a typical class of 800 students is made up of, on the average, 75 percent captains and 25 percent first lieutenants (49).

Squadron Officer School is needed before the company grade officer receives the tougher jobs and the increased responsibilities that come with increased rank. These tougher jobs and increased responsibilities usually come at approximately the four year point for Air Force CE company grade officers. Air Force company grade officers need Squadron Officer School as early as possible to help develop the initial leadership foundation that they will need to carry with them throughout a career.

The Lieutenants' Professional Development Program, offered by the Leadership and Management Development Center at Maxwell AFB, Alabama, since July 1979, is a 25 hour program conducted

over 5 days. The program is for company grade officers with 3 to 24 months active duty time with the intent of bridging the gap between the commissioning source and Squadron Officer School. The program reinforces and builds upon the company grade officers pre-commissioning experiences and provides the new officer with a "real-world" exposure to officership (56:n.p.).

The description pamphlet for this program list the program objective as:

> To translate leadership/management theory into practical [real life] application to better prepare junior officers to assume thier [sic] responsibilities, to strengthen professional values, and to provide a foundation for further professional development. [56:n.p.]

During the 25 hours of instruction, the course covers 5 areas in approximately equal time blocks of 5 hours each: Officer Development, Leadership Development, Personnel Management, Interpersonal Skills, and Problem Solving. These areas are taught by a combination of lectures, seminars, and question and answer periods.

According to Major Estes, the biggest problem with the Lieutenants' Professional Development Program is that, "LMDC [Leadership and Management Development Center] is not currently manned to offer the program on a regular basis either in the field or as a resident program at Air University" (36:73). This was echoed by Captain Salvatore Bova, Senior Management Consultant, Leadership and Management Development Center, when he explained that because of manpower

constraints within the Leadership and Management Development Center the old method of sending out a teaching team from Maxwell AFB, Alabama, to a requesting base in order to train all second lieutenants on that base was changed on 16 May 1986. According to Captain Bova, the new method has the Leadership and Management Development Center training a cadre of personnel from a requesting base at Maxwell AFB, Alabama, in the course content and how to properly teach the course when they return home. After the training has been given to the cadre and they return home the Leadership and Management Development Center forwards the class materials that will be needed by the newly trained team to properly teach the program to the lieutenants (11).

This new method will be successful only if the bases send a cadre to Maxwell AFB for training. In addition, this new method, with proper application at the base, could reduce the problems and difficulties encountered by second lieutenants in the first two years of active duty and provide them with the initial foundation for leadership development.

The professional leadership training and development offered by Squadron Officer School and the Leadership and Management Development Center is further enhanced for Air Force CE company grade officers by attending the Professional Continuing Education short courses offered by the Air Force Institute of Technology School of Civil Engineering, leading a

Prime BEEF team, and/or the daily leadership opportunities provided at base level.

First, the Air Force Institute of Technology School of Civil Engineering offers two short courses, the Contingency Engineering Course, ENG 485, and Introduction to Base Civil Engineering, MGT 001. Each course has class time devoted to the area of leadership education and training for Air Force CE company grade officers. Other short courses offered by the School of Civil Engineering are structured to educate Air Force CE officers on the technical and management aspects of operating a peacetime air base. The Contingency Engineering and Introduction to Base Civil Engineering courses are discussed below.

1. The Contingency Engineering Course, ENG 485, educates Air Force CE company grade officers in employing expedient methods to accomplish CE's mission. Included throughout the 91 hours of class time is instruction in how the CE company grade officer can use the leadership principles listed in Chapter III to accomplish CE's mission. This includes leadership principles such as:

a. Knowing your wartime job.

b. Setting the example.

c. Being sure the task is understood, supervised, and accomplished.

d. Making sound and timely decisions.

One of the major problems with this course is that even though it is offered six times a year there is a four year

backlog to get into the course (54). This is an important consideration in leadership development of Air Force CE company grade officers. Other than the contingency field training provided through the base and Field 4 at Eglin AFB, ENG 485 is the only professional course which provides the CE company grade officer with formal classroom instruction in the contingency area .

2. The Introduction to Base Civil Engineering, MGT 001, provides Air Force CE company grade officers an overall view of Air Force CE to include the mission, organization, techniques, and operations (3:10). This course, like ENG 485, devotes a portion of the total course hours to leadership education in an effort to begin the development of the initial leadership foundation needed by CE company grade officers. The problem with this course is that all CE company grade officers do not or cannot attend this course because of the following:

a. Not released to attend from the initial duty assignment.

b. Scheduling conflicts does not allow the officer to attend before the first 12 months of service. After 12 months the officer is not eligible to attend, unless given special permission.

Second, according to AFR 93-3, Special Civil Engineering, Air Force Civil Engineering Prime Base Engineer Emergency Force (BEEF) Program, Chapter 3, Contingenct Training, a Prime BEEF team member must participate in a home station field training exercise every 12 months and contingency training at Eglin AFB, Florida, every 18 to 30 months, with the desired

frequency every 24 months (24:23). Leading a Prime BEEF team once every 12 months in home station training at base level and once every 18 to 30 months at contingency training at Eglin AFB are two formalized opportunities to develop the leadership skills and abilities needed by Air Force CE company grade officers to effectively accomplish CE's mission.

Finally, probably one of the most important areas in which an Air Force CE company grade officer can develop leadership skills and abilities is through the daily leadership opportunities afforded the officer. These opportunities can be anything from volunteering for additional duties to leading a small Prime BEEF team in completing a special construction project. The opportunities that CE company grade officers have vary from command to command in what the CE senior leadership at a base will let CE company grade officers do. For example:

1. In TAC, CE company grade officers lead Prime BEEF teams in support of Air Force exercises such as Silver Flag and Red Flag (42).

2. In MAC, CE company grade officers lead Prime BEEF teams in deployment to other MAC bases during Operational Readiness Inspections (47).

3. In AFSC, at Edwards AFB, California, CE company grade officers are put in charge of a Structural Maintenance and Repair Team for a set period of time and then rotated to another position (75).

4. In USAFE, CE company grade officers have the opportunity to exercise more on a routine basis because of being so close to the threat (2).

5. In AFLC, CE company grade officers are involved in up to 30 percent more Prime BEEF training than the Air Force average (18).

6. In AU, CE company grade officers are rotated through different jobs in CE and lead Prime BEEF teams on special projects in conjunction with regular Prime BEEF training (13).

7. Company grade officers in RED HORSE are given the responsibility of the whole project, in other words they are accountable from beginning to end. CE company grade officers lead Prime BEEF teams on special projects, in support of major exercises such as Team Spirit, and in joint rapid runway repair exercises with Korean forces (73).

8. Every year CE company grade officers have the opportunity to lead Prime BEEF teams in both command and Air Force Prime BEEF competition in the Prime BEEF Rodeo, which determines who has the best Prime BEEF team in Air Force CE.

This list is by no means complete and could go on forever. What is important to realize is that the leadership opportunities are there and should be coupled with the professional leadership training and development programs. It takes both U.S. Air Force CE company grade officers and senior leaders working together in developing the skills and abilities needed in CE company grade officers in order for them to effectively lead CE personnel in accomplishing CE's mission.

Leadership Development of U.S. Army Corps of Engineers Company Grade Officers

Like U.S. Air Force CE, the U.S. Army Corps of Engineers (COE) needs to have company grade engineering officers who possess the necessary leadership skills and abilities in order for them to effectively lead personnel in the accomplishment of the COE mission. As such, Army Pamphlet 600-3, Commissioned Officer Professional Development and Utilization, Chapter 21, Corps of Engineers, lists four areas of concentration in which COE officers can be assigned to accomplish the COE mission:

1. General Engineer, Specialty Code 21A: This is a nonaccession specialty, which means that once an officer has spent a period of time in an initial specialty they can enter this field. Officers in this position serve in engineer staffs at brigade level and higher or as instructors in service schools, Army Reserve Officer Training Corps units, or the U.S. Military Academy. Officers are eligible for assignments in this area only after branch qualification has been achieved. This includes troop leadership experience, completion of the Engineer Officer Advanced Course, and at least 18 months of successful command at company level (27:40).

2. Combat Engineer, Specialty Code 21J: When an officer is commissioned into the Army COE this specialty code is assigned and after completion of the Engineer Officer Basic

Course the Combat Engineer is usually assigned as a platoon leader of a combat engineering platoon (27:40).

3. Topographical Engineer, Specialty Code 21C: This is a nonaccession specialty like the General Engineer. The Topographical Engineer works side-by-side with the Combat Engineer in the battlefield (27:40-41).

4. Facilities/Contract Construction Management Engineer, Specialty Code 21D: This too is a nonaccession specialty. This speciialty includes all the officer positions within the operations of facility engineering and contract construction management. This specialty code can be closely related to the peacetime mission of U.S. Air Force CE of providing maintenance to base facilities and contract construction management (27:41).

Corps of Engineers Mission. As a Combat Arms Branch in the U.S. Army, the COE has three roles: combat, combat support, and combat service support (27:40). Because of the relationship between the U.S. Air Force CE mission and the U.S. Army COE combat mission and the objective of this research to develop a leadership development model for Air Force CE company grade officers, this research examined only the COE combat mission. This combat mission includes both the Combat Engineer and the Topographic Engineer.

As mentioned earlier, when an officer is commissioned into the Army COE a Specialty Code 21J, Combat Engineer, is assigned. The primary function of the Combat Engineer, according to Army Pamphlet 600-3-21, Combat Engineer, is, "to

command, direct and control the employment of engineer personnel, equipment, and materiel, in support of Army field operations" (25:n.p.). Army FM 5-100, Engineer Combat Operations, lists the five primary missions of the engineer system as, "mobility, countermobility, survivability, general engineering, and topographic engineering". Army FM 5-100 goes on to state that when required the engineers will fight as infantry (28:Ch 1, 11).

Army FM 5-100 describes the function of these missions as follows (28:Ch 1, 10-11):

1. Mobility: Enhancing the ability of the friendly forces by clearing obstacles and clearing and constructing paths for these forces to pass.

2. Countermobility: Construction of obstacles to slow down or impede the mobility of enemy forces.

3. Survivability: Construction of fighting positions and shelters for friendly forces to enhance survivability.

4. General engineering: Construction of base camps, buildings, roads, and airfields.

5. Topographic engineering: Production of maps, surveys, and terrain analysis.

6. Fighting as Infantry: When required, but only as a last resort.

These different missions are part of the support the Combat Engineer provides on the battlefield as a member of the Combined Arms Teams, which is the combination of the different branches of the Army such as COE, Infantry, and Armor.

Corps of Engineers Officer Career Progression. Like the U.S. Air Force one of the ways in which a COE combat engineering company grade officer can develop individual leadership skills and abilities is through career progression. Army Pamphlet 600-3, Commissioned Officer Professional Development and Utilization, Chapter 21, Corps of Engineers, Section 4, Career Patterns and Professional Development Objectives, states that engineer career planning "is designated to ensure the fullest professional development and effective use of officers while accomplishing the engineer mission of the U.S. Army" (27:41). Interesting and challenging assignments are provided in each of the three roles of the Army COE mentioned above that build the knowledge level of the COE company grade officer which will be used throughout the career of the individual (26:n.p.). With the new Army Officer Personnel Management System as much as 60 percent of COE officers may single track within the four engineering areas of concentration during a career, while at the eighth year of service the other 40 percent will have the opportunity to choose a functional area in which to serve. A functional area can be an assignment in Research and Development, Force Development, or a list of many more (27:41).

Army Pamphlet 600-3, Commissioned Officer Professional Development and Utilization, Chapter 21, Section 4, lists and describes the four overlapping career development periods for the Army COE officer as follows:

1. Basic Military Development Period (0 through 8 years). The primary objective of this period is to develop the basic leadership and soldiering skills and abilities needed by the COE company grade officer in order to become an effective member of the Combined Arms Team. The assignments these officers receive during this period aim at troop leadership and the demonstration of officer competence to command at company level. Once the Army COE lieutenant has completed the Engineer Officer Basic Course the primary aim of troop leadership can be seen in the initial assignment as a Combat Engineer Platoon Leader. In addition to gaining experience of troop leadership at company level, the COE company grade officer should focus attention on completing the Engineer Officer Advanced Course, commanding a company, and serving on a battalion/brigade level staff (27:41). Key points for COE officers during this period are:

a. After Engineer Officer Basic Course the officer is assigned as a platoon leader to gain troop experience at company level.

b. The officer is selected to attend the Engineer Officer Advanced Course close to promotion to captain and after graduation the officer is assigned to a position which gives the officer the maximum opportunity to command.

c. The officer might have the opportunity to further individual studies through graduate studies.

d. Around the eighth year of service the officer will be given the opportunity to select a functional area in which future assignments can be made. At this point officers selecting a functional area will follow either a dual career track or a sequential career track. With a dual career track the officer alternates between branch and functional area assignments. With a

sequential career track the officer receives assignments only in the chosen functional area for the rest of the officer's career (27:41).

2. Professional Broadening Period (9 through 16 years). The objective of this period is the development of the conceptual skills needed by Army COE field grade officers to accomplish rank related command and staff positions at different levels in the COE structure (27:41). Key points for field grade officers during this period are:

a. In an effort to gain as much knowledge as possible for higher positions of command and responsibility, the officer should become qualified in the other engineer areas of concentration and/or a functional area. This is accomplished while still maintaining current qualification as a Combat Engineer.

b. If the officer is on a single career track in the Engineer Branch the officer should try to obtain troop assignments at both battalion and brigade levels. This is a prerequisite and an important consideration for COE field grade officers in obtaining a battalion command.

c. The officer must have completed the Combined Arms and Services Staff School by the tenth year of service.

d. Somewhere between 10 and 14 years of active duty the officer may be chosen to attend the U.S. Army Command and General Staff College, the Armed Forces Staff College, or an equivalent school. These courses are vital to career progression and promotion potential and officers not selected to attend in residence shcuid make every effort to complete the Army Command and General Staff College course by correspondence (27:41).

3. Advanced Contribution and Development Period (17 through 23 years). During this period the Army COE officer is used in the career field in which the officer has developed the most expertise and can utilize the strengths and potential

of the individual (27:41). Key points for officers during this period are:

a. The officer may be selected to attend one of the senior Service Colleges such as Army War College, The National War College, or the Industrial College of the Armed Forces.

b. At some point during this period selected officers will have the opportunity to command at higher Army COE levels.

c. Here assignments in the other engineer areas of concentration and functional areas will increase while assignments in combat engineering will decrease (27:41-42).

4. Major Professional Contribution (24 years and up). During this period the Army COE officer will utilize individual talents, leadership skills and abilities, and knowledge of the engineering field that were developed over the length of the career in order to make the maximum contribution to the COE effort (27:42).

Army Pamphlet 600-3-21, Combat Engineer, lists some of the typical assignments a Combat Engineer might expect to have over a career (25:n.p.):

1. Lieutenant:

   a. Platoon Leader or Training Officer

   b. Company Executive Officer

   c. Assistant Battalion Staff Officer

2. Captain:

   a. Company Commander

   b. Instructor at service school

c. Recruiting Area Commander

d. Staff Officer at brigade/division level

3. Major:

a. Battalion Executive Officer or Operations Officer

b. Brigade/Division Staff Officer

c. Additional specialty utilization (other engineer areas of concentration or functional areas)

4. Lieutenant Colonel:

a. Battalion Commander

b. Readiness Region coordinator

c. High level staff Action Officer

5. Colonel:

a. Brigade/Group Commander

b. High level staff officer

c. Director at service school

As this outline of career progression shows the U.S. Army COE company grade officer has the opportunity to lead a unit on the average four years earlier as compared with U.S Air Force CE counterparts. This is an important aspect in the ability of the company grade engineering officer to effectively handle the role of leading personnel in the accomplishment of a wartime mission.

Leadership Education and Training Programs and Development Opportunities. Even though the U.S. Army COE has a different mission than that of U.S. Air Force CE, it still has the requirement for capable leaders so that the mission can be effectively accomplished. Colonel Huba Wass de Czege,

Director of the Advanced Military Studies Department at the United States Army Command and General Staff College, Fort Leavenworth, Kansas (as of June 1984), states in his Military Review article entitled "Challenge for the Future: Educating Field Grade Battle Leaders and Staff Officers":

> Conditions on the battlefield today make it imperative that commanders and staff officers be capable of handling a multitude of tasks that are focused on defeating the enemy. Recent changes in the Army's education system are aimed at producing highly qualified officers who can shoulder such responsibilities. [89:3]

This statement can be applied to any Army COE officer, especially COE company grade officers since the initial assignment for most of these officers is as a platoon leader. The Army wants leaders who can do more with less under trying circumstances, such as war, and in less time given a varying set of possible missions, by possessing the "Be," "Know," and "Do" attributes of leadership (described in Chapter III) that are required to lead soldiers successfully in peace and war (46:67;89:3). According to Colonel Wass de Czege, "this will require a leadership with a common educational and cultural perspective on war which stays conceptually ahead of the ever-changing technology" (89:3).

The challenge to develop the leadership skills and abilities of U.S. Army COE company grade officers is an interesting challenge because, as with U.S. Air Force CE, young lieutenants in the U.S. Army are fresh from one of three commissioning sources, the U.S. Military Academy, Officer Candidate School, or Army Reserve Officers Training Corps.

However, the big difference is in what the U.S. Army does with officers once commissioned. Instead of sending COE lieutenants straight to an engineering job like the Air Force, they are sent to a 15 week Engineer Officer Basic Course at Fort Belvoir, Virginia. The training philosophy for the U.S. Army COE is, "engineers are first trained as soldiers, second as engineers, and finally as specialists" (28:Ch 1, 11). Army Pamphlet 600-3, Commissioned Officer Professional Development and Utilization, Chapter 2, Officer Professional Development and Planning, Section 1, Officer Professional Development adds to this by stating, "the development of the professional attributes and technical capabilities of Army officers to meet the needs of the Army is accomplished through planned schooling and progressive assignments" (27:6). In addition, this section states:

> The Army in peacetime prepares for war and accomplishes other missions as directed by the national leadership. As such, professional development of Army officers is keyed to ensure that officers are properly trained. . . . Throughout an officer's career, schooling, experiences, assignments, and promotions are all aimed to professionally develop the officer toward these goals of combat readiness and peacetime mission accomplishment. [27:6]

Like the U.S. Air Force, the initial development of leadership skills and abilities for Army COE company grade officers comes from one of the three commissioning sources mentioned earlier. This initial leadership development and training is the first level in a system of Military Qualification Standards which specifies the knowledge and

skills an Army officer needs to know and must acquire at various points throughout a career in order to effectively perform duties and accomplish the mission (59:45-46). General William R. Richardson, Commanding General U.S. Army Training and Doctrine Command (as of October 1983) states in his Army article entitled "TRADOC: Army's Source of Well-Trained Soldiers" that:

> Officer's professional development, through company grade levels, will be guided by military qualification standards (MQSs) that document military tasks trained in the service schools and in the unit, and which formally address professional military education. [71:53]

The first level, Military Qualification Standards Level I, or the precommissioning standards, develops the common base of military skills, leadership, knowledge, and education every Army officer needs from the beginning to the end of a career. In addition, this level develops the base on which all other Military Qualification Standards levels are built upon, which is based on the mission for that particular branch of the Army. For example, Military Qualification Standards Level II, or lieutenants' standards, lists engineer tasks and skills, such as supervising installation of minefields and minefield clearing operations and layout of a troop camp, that should be mastered by the Army COE lieutenant (59:45-46,225-229). There are similar type standards and skills called Military Qualification Standards Level III, or captains' standards, that Army COE captains should master.

In the area of professional development, Army Pamphlet 600-3, Commissioned Officer Professional Development and Utilization, Chapter 2, Officer Professional Development and Planning, Section 9, Professional Development Phases, describes five phases of development from lieutenant to colonel that Army officers go through in a career. The basic elements of this officer professional development are (27:6):

1. Development in respective specialty code.

2. Professional education in resident and non-resident instruction and civilian education.

3. Individual development.

4. Different assignments in career field.

5. Active involvement by commanders.

As this research examined only what is required for company grade officers, only the first two phases will be discussed.

First, the Lieutenant Phase begins when the officer enters active duty. The first exposure to professional development the officer receives is through the branch basic course such as Infantry, Armor, or COE School. Here the officer learns the mission and basic function of the selected branch which provides the technical knowledge the officer will need later to operate effectively in that branch. In addition, the advanced course provides the building blocks for the leadership skills and abilities the officer will need to effectively carry out the branch's mission (27:8).

In the case of Army COE lieutenants, this basic course is the Engineer Officer Basic Course at Fort Belvoir, Virginia.

The Engineer Officer Basic Course is a 15 week course that is designed to provide the new lieutenant the necessary military skills and technical knowledge in order for them to effectively and confidently command an engineer platoon. During the 15 weeks the officers will go through 5 phases: General Skills, Field Skills, Engineer Skills, Field Training Exercise, and Final Phase (82:n.p.). The COE brochure entitled Engineers the Dynamic Corps describes what is taught in these five phases as follows (82:n.p.):

1. General skills (3 weeks): Leadership, communications, and Nuclear, Biological, and Chemical operations.

2. Field Skills (3 weeks): Weapons training, demolitions, mine warfare, field fortication, and land navigation.

3. Engineer Skills (6.5 weeks): Plumbing, bridging, horizontal and vertical construction.

4. Field Training Exercise (1 week): A review of general skills, combat engineering, and tactics.

5. Final Phase (1.5 weeks): History of COE, organizational effectiveness, and equal opportunity.

Out of this 15 weeks, 20 percent of the course content is spent in the area of leadership, however Army Pamphlet 600-3-21, Combat Engineer, notes that during the Engineer Officer Basic Course:

> Special emphasis is placed on physical fitness and leadership ability. Daily physical training classes ensure that each student achieves an excellent level

> of physical conditioning--a prerequisite for graduation. Student leadership positions are rotated regularly so that all participants receive exposure to this critical facet of every military officer's responsibilities. [26:n.p.].

The big difference with respect to leadership development comes after graduation when the lieutenant is assigned as a Combat Engineer platoon leader. Here the Army COE company grade officer has the opportunity to apply the recently acquired skills while leading a platoon in accomplishment of the COE mission, to include planning of engineer operations and advising battlefield commanders on how engineer platoons can be utilizied in battlefield operations (26:n.p.;82:n.p.).

This first assignment will allow the officers in all branches to apply the recently learned skills and to further enhance the needed leadership skills and abilities required to effectively carry out the mission of the branch. In addition, after completion of the basic course some officers will have the opportunity to further enhance professional development and support future follow-on assignments by attending special schools such as Ranger and/or Airborne schools (27:8).

Army Pamphlet 600-3, Commissioned Officer Professional Development and Utilization, Chapter 2, Section 9, states that, "officers should seek leadership positions in troop units whenever possible since this duty provides the officer an understanding of Army operations and military life that will provide a solid foundation for future service" (27:8).

Last, the Captain Phase is a continuation of the Lieutenant Phase in which the company grade officer continues

to build skills in the chosen specialty code, while on a constant basis developing and honing individual leadership experience and military knowledge. Most officers in this phase will attend an advanced course in the officer's branch, while other officers will attend the advanced course of another branch. In the advanced course the company grade officer tries to complete branch qualification and assignment specific training for future assignments, while learning about staff operations and tactics (27:8).

In the case of the Army COE company grade officers, they attend the Engineer Officer Advanced Course, also conducted at Fort Belvoir, Virginia. The Engineer Officer Advanced Course is attended by Army COE company grade officers three to five years after completion of the Engineer Officer Basic Course. During the six month course, COE company grade officers learn battalion and brigade staff operations and the additional leadership and combat engineering skills necessary to serve as a company commander upon graduation (82:n.p.). The curriculum of the Engineer Officer Advanced Course ranges from management and leadership to engineers in combat. Of the 804 hours of academic instruction, 9 percent is devoted to the subject of leadership (59:32). After graduation the officer will have the opportunity to become an engineer company commander or to be assigned a tour of duty with a COE district or division (82:n.p.).

The assignment as company commander is typical of the officers in the other branches. During this phase of the

officer's career this is a key objective in the career and professional development of the officer. In addition, during this period the officer should complete the Combined Arms and Services Staff School by the tenth year of active duty. This school further enhances the leadership skills and abilities already learned from the Officer Basic and Advanced Courses and from job experiences (27:8).

Along with the normal day-to-day job of the Army COE company grade officer and the professional schools, there are many unique opportunities for COE company grade officers to further enhance and develop individual leadership skills and abilities. For example, engineers at Fort Stewart, Georgia, regularly train with the 1/75th Rangers or COE company grade officers serving with the 82nd Airborne Division's 307th Engineers, by parachuting into a foreign area to supervise the construction of a tactical airstrip for C-130 aircraft (82:n.p.).

Leadership Development of U.S. Marine Corps Company Grade Engineering Officers

Like U.S. Air Force CE, U.S. Marine Corps Fleet Marine Force Engineer Units need to have company grade engineering officers who possess the leadership skills and abilities necessary for them to effectively lead personnel in accomplishing the Marine Corps engineering mission. As such, once a Marine Corps company grade engineering officer has been designated a Combat Engineer there is one of three Fleet

Marine Force engineering commands in which this officer can be assigned to accomplish this mission (4):

1. Combat Engineer Battalion
2. Engineer Support Battalion
3. Wing Engineer Squadron

Fleet Marine Force Engineering Mission. The overall mission of the Fleet Marine Force engineers, according to Marine Corps Fleet Marine Field Manual (FM) 4-4, Engineer Operations, is, "to increase the combat effectiveness of the landing forces" (83:1). The three Fleet Marine Force engineering commands listed above are organized and equipped in such a manner so that the respective missions can be performed under any circumstances or conditions. As a whole, Marine Corps engineer units provide the following in the way of engineering support to the battlefield [83:1-2]:

1. Combat engineer support required for landing force operations.
2. Establishment and maintenance of expeditionary airfields.
3. Construction and maintenance of routes of communication.
4. Potable water and hygienic services.
5. Class III and class III(A) bulk fuels.
6. Utility power support.
7. Establishment and maintenance to temporary camps.

Marine Corps Fleet Marine FM 4-4, Engineer Operations, defines the mission of the three Fleet Marine Force engineering commands. Even though each one has a separate

mission, all three tie back into the overall Fleet Marine Force engineering support listed above.

First, the Combat Engineer Battalion mission is to "increase the combat effectiveness of the Marine division by rendering close combat engineer support" (83:15). The functions performed by the Combat Engineer Battalion are as follows [83:17-18]:

1. Engineer reconnaissance within the division zone of action or sector of defense.

2. Temporary repair and maintenance of existing roads and limited new construction and maintenance of pioneer roads for moderate combat service support traffic.

3. Erecting standard, prefabricated[,] fixed and floating bridges. Bridges and supervisory personnel are provided by the engineer support battalion.

4. Constructing pioneer type timber bridges from local material *when* available.

5. Constructing and operating rafts.

6. Reinforcing, repairing, [and] maintaining bridges other than prefabricated types.

7. Constructing and maintaining expeditionary airfields for observation aircraft, helicopters, and VTOL type aircraft.

8. Providing potable water and hygienic services for the division.

9. Providing electrical utilities for the division command post.

10. Constructing and positioning obstacles requiring special engineer equipment or technical skills.

11. Supervising the placement of extensive minefields and boobytraps.

12. Furnishing technical and mechanical assistance for the construction of cut-and-cover type temporary fortifications.

13. Performing specialized demolition missions beyond the capability of the infantry.

14. Providing specialized assistance in breaching obstacles, including mines, from the high water mark inland.

15. Supervising extensive or sensitive minefield clearance.

16. Supervising specialized camouflage tasks, primarily concealment and deception measures of major significance to the division as a whole.

Second, the Engineer Support Battalion mission is to "increase the effectiveness of the landing force by accomplishing general engineer missions of a deliberate nature" (83:35). The functions performed by the Engineer Support Battalion are as follows [83:37]:

1. Development of routes of communication to include:

   a. Construction, repair, and maintenance of roads and trails. Improvement and extension or routes of communication initiated by division engineer forces.

   b. Erection of prefabricated (fixed and floating) bridges and rafts.

   c. Replacement of prefabricated bridges with semipermanent bridges.

   d. Reinforcement, repair, and maintenance of existing bridges.

2. Installation and operation of bulk fuel systems in support of MAGTF [Marine Air Ground Task Force] operations.

3. Construction of temporary camps with minimum utilities and essential storage and maintenance structures.

4. Installation and removal of minefields.

Finally, the Wing Engineer Squadron mission is to "provide engineer (construction, facilities maintenance, utilities, and tactical airfield fuel dispensing system (TAFDS)) support of a deliberate nature for the Marine aircraft wing and assigned units" (83:27). The functions performed by the Wing Engineer Squadron are as follows [83:29]:

1. Engineer reconnaisance/survey within the landing force zone of action.

2. Repair, improve, and maintain existing road nets within the MAW's [Marine Aircraft Wing] area of responsibility.

3. Construct and maintain expedient methods.

4. Construct, improve, and maintain helicopter and light reconnaissance aircraft landing sites to meet minimum wing requirements.

5. First echelon level maintenance of all assigned equipment and second echelon maintenance on assigned infantry weapons.

6. Construct temporary camps to include the provision of technical and equipment assistance for the erection of shelters.

7. Provide essential utilities support in the area of electrical power.

8. Provide essential water and hygienic support in the area of potable water, bath, and laundry facilities.

9. Repair existing warehouses and facilities.

10. Develop, improve, and maintain drainage systems.

11. Provide survey and drafting support as required.

These different engineering missions all combine into the necessary engineering support required by the Marine Corps in

battlefield conditions and is a vital part in the overall scheme of the Marine Corps operation.

Fleet Marine Force Engineering Officer Career Progression. Like the U.S. Air Force and U.S. Army, one of the ways a Marine Corps company grade engineering officer can develop individual leadership skills and abilities is through career progression and development. Major Harold Mashburn, Jr., USMC, in his Air Force Institute of Technology School of Systems and Logistics thesis entitled An Evaluation of the Education and Training of Marine Corps Combat Engineer Officers, quotes Marine Corps Order P1200.7D, Military Occupational Specialty (MOS) Manual, which outlines the career progression for each Marine Corps occupational specialty and states that, "the assignments . . . should provide a well-balanced foundation for career broadening experiences to prepare for future assignments of increased responsibility" (59:37).

According to Captain Michael C. Anderson, USMC, Engineering Company Grade Ground Officer Monitor, HQ USMC, there are two basic career tracks in which Marine Corps engineering officers can follow. These tracks include assignments in both Fleet Marine Force and non-Fleet Marine Force billets (typical assignments for each of these are described after the second career track listed below). After completion of The Basic School and the Marine Corps Engineer School Combat Engineer Officer Course the Marine Corps engineering officer follows one of the following career tracks (4):

1. Marine Corps engineering officer career track I:

   a. First two years as a platoon leader in a Combat Engineer Battalion or a Engineer Support Battalion.

   b. Third year in a remote tour in any of the three Fleet Marine Force engineering commands.

   c. Fourth through sixth year in an independent duty assignment.

   d. Around the fifth year of service the officer is screened to go to the Amphibious Warfare School and the Engineer Officer Advance Course at Fort Belvoir, Virginia. Only 15 to 20 percent of engineering captains go to this school.

   e. After completion of school the officer goes back to the Fleet Marine Force for the next two to three years to work in their military occupational speciality.

   f. For the next ten years, or to approximately the twentieth year of service, the officer alternates assignments in and out of the respective military occupational specialty.

2. Marine Corps engineering officer career track II:

   a. First year in a remote tour as a platoon leader in a Combat Engineer Battalion or a Engineer Support Battalion.

   b. Second through fourth year the officer is assigned in a non-Fleet Marine Force assignment.

   c. Fifth through seventh year the officer is assigned to a Fleet Marine Force assignment (probably as a company commander).

   d. At this point the officer goes to school such as Inspector/Instructor school.

   e. After completion of school, the officer will probably be assigned to a reserve unit for the next three years as an Inspector/Instructor. This is the active duty officer in charge of the reserve unit.

   f. At this point, the engineering officer picks up with and continues with career track I (1f above).

With these career tracks in mind some of the typical Fleet Marine Force and non-Fleet Marine Force assignments a Marine Corps engineering officer can receive at different ranks are listed below. These lists were extracted from Table 2.9, Military Occupational Specialty 1302 Career Development Guide, and Fleet Marine Force and non-Fleet Marine Force assignments found in the thesis completed by Major Mashburn (59:38,44):

1. Lieutenant:

    a. Fleet Marine Force assignments:

        (1) Force Service Support Group - Engineer Support Battalion:

            (a) Platoon Leader in Engineer Company
            (b) Executive Officer in Engineer Company
            (c) Assistant Staff Officer

        (2) Division - Combat Engineering Battalion:

            (a) Platoon Leader in Combat Engineer Company
            (b) Executive Officer in Combat Engineer Company
            (c) Assistant Staff Officer

    b. Non-Fleet Marine Force assignments:

        (1) Student at The Basic School
        (2) Student at Marine Corps Engineer School
        (3) Marine Barracks Officer-In-Charge in the Marine Detachment at a naval installation
        (4) Assistant operations/training officer at Marine Corps Engineer School
        (5) Range Officer at Camp Lejeune, North Carolina

2. Captain:

    a. Fleet Marine Force assignments:

        (1) Force Service Support Group - Engineer Support Battalion:

(a) Staff Officer
(b) Company Commander of Engineer Company
(c) Executive Officer of Support Company

(2) Division - Combat Engineer Battalion:

(a) Staff Officer
(b) Company Commander of Engineer Company
(c) Executive Officer of Engineer Support Company

(3) Wing - Wing Engineer Squadron

(a) Engineer officer
(b) Assistant Operations Officer

b. Non-Fleet Marine Force assignments:

(1) Student at career level school, such as Amphibious Warfare School
(2) Student at Engineer Officer Advanced Course
(3) HQ USMC staff officer
(4) Inspector/Instructor at a reserve unit
(5) Academic/Operations Officer at the Marine Corps Engineering School

3. Major:

a. Fleet Marine Force assignments:

(1) Force Service Support Group - Engineer Support Battalion:

(a) Executive Officer
(b) Company Commander Engineer Support Company
(c) Staff Officer

(2) Division - Combat Engineer Battalion:

(a) Executive Officer
(b) Staff Officer

(3) Wing - Wing Engineer Squadron:

(a) Executive Officer
(b) Operations Officer
(c) Section Commander

b. Non-Fleet Marine Force assignments:

(1) HQ USMC staff officer
(2) Student at intermediate level school

(3) Engineer instructor at Education Center, Marine Corps Development and Education Command, Quantico, Virginia
(4) Combat Engineer and Engineer officer at Development Center, Marine Corps Development and Education Command

4. Lieutenant Colonel:

a. Fleet Marine Force assignments:

(1) Force Service Support Group:

(a) Battalion Commander, Engineer Support Battalion
(b) Engineer Officer

(2) Division:

(a) Division Engineer
(b) Battalion Commander, Combat Engineer Battalion

(3) Wing, Company Commander Wing Engineer Squadron

b. Non-Fleet Marine Force assignments:

(1) HQ USMC staff officer
(2) Student at top level school
(3) Executive Officer, Marine Corps Engineer School
(4) Inspector/Instructor on Inspector/ Instructor staff

As can be seen by the assignments that Marine Corps engineering officers receive over a career, Marine Corps company grade engineering officers, like Army COE company grade engineering officers, have the opportunity to lead a unit on the average four years earlier as compared with U.S. Air Force CE counterparts.

Leadership Education and Training Programs and Development Opportunities. Even though the U.S. Marine Corps Fleet Marine Force Engineer units have a different mission

than that of the U.S. Air Force CE, there is still the requirement for capable leaders in order for the mission to be effectively accomplished. The User's Guide to Marine Corps Leadership states that the primary goal of Marine Corps leadership training is to "develop the leadership qualities of Marines to enable them to assume progressively greater responsibilities to the Marine Corps and society" (88:Ch 1, 1). This guide goes on to state that:

> Marines cannot become leaders simply by attending discussions. The commander must develop a leadership training system that provides both the academic learning and the actual leadership experience necessary to develop Marines into real leaders. [88:Ch 1, 1]

Marine Corps Order 1500.40, Marines Corps Training Philosophy, Definitions, Priorities and Training Requirements, describes the Marine Corps training program as having both entry and post entry level training (84:1). Marine Corps Order 1500.40 defines entry level training as:

> Training required of each individual upon initial entry into the Marine Corps. This consists of recruit training or officer acquisition training and the initial skill qualification training a Marine must receive to qualify in an MOS. [84:1]

MCO 1500.40 defines post entry level training as:

> Training a Marine receives after assignments to a unit to maintain and develop proficiency acquired during entry-level training. [84:1]

These two types of training take place at three levels in the U.S. Marine Corps structure: individual, unit, and institutional (formal) schools (84:2-3).

The initial development of leadership skills and abilities for Marine Corps company grade engineering officers is through what the Marine Corps calls officer acquisition training. This includes the commissioning sources: U.S. Naval Academy, Platoon Leaders Class, Officer Candidate Course, and Naval Reserve Officers Training Corps (Marine option). Major Mashburn states in his thesis on the Marine Corps officer acquisition programs that:

> The Marine Corps does not actively recruit college students to fill specific technical billets. Instead, the Marine Corps believes that any individual who meets the academic and physical requirements for commissioning, and who has the desire to succeed can be educated and trained to meet current manpower needs. [59:13]

The officer acquisition programs mentioned above are similar to the officer acquisition programs of the other services. Each one provides the Marine Corp officer the basic foundation on which to build the leadership skills and abilities needed for a successful career. However, there are differences with the other services which must be addressed.

First, the Platoon Leaders Class program is unique to the Marine Corps. This program is open to qualified male freshmen, sophomores, and juniors from accredited colleges and universities, who upon graduation are commissioned in the U.S. Marine Corps. They receive pre-commissioning training during the summer months, with no active involvement for the individuals during the school term. The freshmen and sophomores attend a six week junior course at Quantico, Virginia, the summer after enrollment and a six week senior

course, also at Quantico, the summer prior to graduation. The individuals who sign up in the junior year must attend a ten week combined course the summer immediately prior to graduation (59:14-15).

Second, in relation to the other service academies where all the individuals go into that respective service, only one-sixth of a graduating U.S. Naval Academy class are eligible to choose the Marine Corps as a branch of the service to serve. This preference comes in the last half of the fourth year and is based on overall class standing, which includes academics, leadership, and conduct evaluations (59:15-16).

Third, in the Naval Reserve Officers Training Corps (Marine option), as with the U.S. Naval Academy, only one-sixth of the graduating class can choose the Marine Corps option. The difference between this and the U.S. Naval Academy is that these individuals have academic classes and drill sessions throughout the school year and during the summer while going through the four year program (59:16).

Finally, there is the difference of when officers who are commissioned in the Marine Corps receive individual specialties. Unless they have received one of two guaranteed military occupational specialties, Naval Aviator and Naval Flight Officer, prior to commissioning they will not receive a specialty until the latter half of the Basic Officer Course (59:2). This is in contrast to the U.S. Air Force and U.S.

Army in which officers in these services know individual specialties upon commissioning.

The first professional leadership development program that Marine Corps company grade engineering officers attend is the Basic Officer Course taught at The Basic School in Quantico, Virginia. The Basic Officer Course is a 23 week course which covers 1088.50 hours of academic instruction ranging from map reading and land navigation to field engineering. Out of the 1088.50 hours of academic instruction, 18.26 percent is devoted to leadership. As mentioned earlier, the Basic Officer Course is the place where the military occupational specialty of the officer is decided. The military occupational specialty selection for the officer is based on academic performance, leadership ability, professional evaulations conducted on the individual during the length of the course, and most importantly the requirements of the U.S. Marine Corps (59:19-20).

The Program of Instruction (POI), Basic Officer Course states that the mission of The Basic School is, "to provide the officer student the basic knowledge, skills, and establishment of goals required of every Marine Corps officer" (86:I-1). In explaining how The Basic School meets this mission, Major Mashburn states:

> In accomplishing its mission, The Basic School strives during the Basic Officer Course (BOC) to provide newly commissioned officers a basic professional education prior to specific skill training in a military specialty, and to instill in them the esprit and leadership traditional to the Marine Corps, in order to prepare them to assume the duties and responsibilities of a company grade

> officer in the field and in garrison, in peacetime or in war. [59:17-18]

The Program of Instruction states that the Basic Officer Course is designed "to provide instruction in the subjects that have been identified as the most important for newly commissioned officers to perform their future duties" (86:I-2). The Program of Instruction goes on to state that the instruction "instills in the lieutenants the motivation, mental toughness, self-discipline, esprit, determination, and standards of conduct required in Marine officers" (86:I-3). Major Mashburn summed it up best when describing the Basic Officer Course by stating, "during every phase of instruction the students are exposed to the intangible traits and characteristics that distinguish them as officers of Marines" (59:19).

After the military occupational specialty of the officer has been selected and the officer has graduated from the Basic Officer Course the officer attends a military occupational specialty school. These schools are designed to enhance what was learned at the Basic Officer Course and to give the officer the basic foundation for the skills that will be needed by the officer to effectively accomplish the mission of the respective military occupational specialty.

In the case of the Marine Corps Company grade engineering officer, this course is the Combat Engineer Officer Course taught at the Marine Corps Engineer School at Camp Lejeune, North Carolina. The Combat Engineer Officer Course consists

of ten weeks covering 235 academic hours of instruction, in which six percent of the time is devoted to management and job planning (59:21,25). This six percent is the closest the course gets to classroom instruction on leadership because, according to Captain Anderson, once the Marine engineering officer leaves the Basic Officer Course, leadership is learned on the job, or to Marine Corps engineering officers "leadership is a daily practice" (4). The Program of Instruction (POI), Combat Engineer Officer Course states the course "consists of performance-based instruction oriented toward battlefield mobility, counter-mobility, survivability, and general engineering" (87:I-1). According to Major Mashburn, the mission of the Combat Engineer Officer Course is "to train company grade officers as Combat Engineer Officers" (59:21). Major Mashburn goes on to explain that once the officer graduates, a 1301 Military Occupational Specialty is assigned, which means the officer has a basic specialty. After six months of serving in an engineering assignment and with the recommendation of their commander the officer is assigned a 1302 Military Occupational Specialty, Combat Engineer Officer (59:21).

The next phase in the Marine Corps company grade engineering officers professional development comes from the Amphibious Warfare School. This is the first level of professional military education which is considered as a career level course for captains of any military occupational specialty. The Program of Instruction (POI), Amphibious

Warfare Course-84 states that the mission of the school is "to prepare Marine Corps captains and other selected officers for the conduct of amphibious operations at the MAU/MAB [Marine Amphibious Unit and Marine Amphibious Brigade] level" (85:I-1). The Amphibious Warfare School is 39 weeks long, covering 1256.5 hours of academic instruction. This is an excellent course in which officers of the different military occupational specalities can share experiences and individual knowledge in order to obtain a better appreciation for other Marine Corps company grade officers and the role they play in the overall Marine Corps mission. However, according to Major Mashburn from an interview with Captain Jim Harbison, USMC, company grade engineering officer monitor, HQ USMC, (as of 19 April 1984) the problem with this course is that, as of 1984, "only three Combat Engineer Officers currently attend this career-level course each year. This is approximately five percent of the combat engineer captains eligible to attend a career-level course" (59:30-31).

After completion of Amphibious Warfare Course, Marine Corps company grade engineering officers are eligible to attend the Engineer Officer Advanced Course taught at Fort Belvoir, Virginia. This course was described earlier under the leadership education and training programs and development opportunities for U.S. Army COE company grade engineering officers. Major Mashburn states that the Engineer Officer Advanced Course is attended by "most of the eligible Marine Corps combat engineer captains who attend a career-level

school". Major Mashburn goes on to state that, according to the Program of Instruction for the Engineer Officer Advanced Course, "the prerequisites of the current EOAC [Engineer Officer Advanced Course] are broad enough to allow the attendance of Marine Corps Combat Engineer Officers, requiring only training in the basic level Combat Engineer Officer Course" (59:31).

Other methods used by Marine Corps company grade engineering officers to help in further developing individual skills and abilities is through the Marine Corps Institute. The Marine Corps Institute offers correspondence courses in various topics to all ranks in all military occupational specialties which requires the initiative of the individual to take and complete the course.

Leadership Development of U.S. Navy Civil Engineer Corps Company Grade Officers

Like the other three military services, the U.S. Navy Civil Engineer Corps (CEC) needs to have company grade engineering officers who possess the necessary leadership skills and abilities in order for them to effectively lead personnel in accomplishing the Navy CEC mission. As such, once the officer is commissioned into the CEC with specialty code 510X one of four assignments can be received to begin the the foundation of leadership development: Public Works, Contract Administration, Construction Battalion Operations (SEABEES), and staff (69:2,27). In this capacity the CEC

officer is three different entities: a naval officer, an engineer or architect, and a manager of resources, in which all three must be meshed together to effectively perform the U.S. Navy CEC mission (69:vi).

Civil Engineer Corps Mission. To meet and support the overall mission of the U.S. Navy, it operates and maintains a worldwide Naval Shore Establishment. The U.S. Navy CEC publication, The Navy Civil Engineer Corps, states that the Naval Shore Establishment consists of "shipyards, naval stations, homes, schools, hospitals, research centers, communication systems, power plants, factories, canals, and railroads . . . millions of acres of timberland, and oil and mineral deposits" (68:2). The overall mission of the U.S. Navy CEC, according to the Navy CEC publication, The Navy Civil Engineer Corps, is, "planning, designing, constructing, and maintaining this worldwide Shore Establishment" (68:2). Even though this mission is the central mission of the Navy CEC it is accomplished by three different areas in the Navy CEC structure. According to the Navy Civil Engineer Corps Career Planning Guide, these areas are Public Works, Contract Administration, and Construction Battalion Operations (SEABEES) (69:27).

First, the mission of Public Works is the operation and maintenance of the facilities and utilities systems found in all Navy shore installations and activities (69:27). This mission includes [69:27]:

1. Facilities design

2. Construction

3. Maintenance and repair

4. Utilities systems operation and maintenance

5. Transportation equipment operation and maintenance

6. Family housing maintenance and administration

Second, the mission of Contract Administration is the administration of over $2 billion each year in Navy military construction contracts to meet the needs of the shore facilities (67:9). The contracts in this construction are often performed by civilian contactors. This mission includes (69:27):

1. Supervision of facility design (often completed by architect-engineer contract)

2. Contract award

3. Construction progress inspection and monitoring

4. Approval and negotiation of changes

5. Acceptance of completed work

Finally, Construction Battalion Operations, or the SEABEES as they are commonly known, are the Navy's combat construction force and as a whole, combining all naval construction battalions and special construction teams, make-up the Naval Construction Force. This Naval Construction Force is made up of the following key elements: Naval Mobile Construction Battalions (better known as SEABEE Battalions) (68:7;69:27), Amphibious Construction Battalions, Underwater Construction Teams, Construction Battalion Units, and

Construction Battalion Maintenance Units (69:27). U.S. Marine Corps Fleet Marine FM 4-4, Engineer Operations, describes the mission of these elements as:

1. Naval Mobile Construction Battalions provide:

   Responsible military construction support to naval, Marine Corps, and other forces in military operations; to construct base facilities; and to conduct defensive operations as required by circumstances of the deployment situation. [83:53]

2. Amphibious Construction Battalions provide:

   Designated elements to the commander amphibious task (CATF), supports the naval beach party during the initial assualt and early phases of an amphibious landing operation, and assists the shore party in operations that do not interfere with the primary mission. [83:54]

3. Underwater Construction Teams provide:

   Underwater engineering, construction, and repair capability to meet the requirements of the Navy, Marine Corps, and to other services and government agencies as directed. [83:56]

4. Construction Battalion Units provide:

   Engineering (maintenance, operation, and construction) support which is of a nature that does not lend itself to efficient accomplishment by other NCF [Naval Construction Force] components. A CBU [Construction Battalion Unit] may be formed to fulfill a specific requirement at a specific location, and be disestablished when that requirement has been satisfied. [83:56]

5. Construction Battalion Maintenance Units:

   To operate and maintain public works and public utilities at overseas and forward area bases after construction has been completed. [83:55]

The SEABEES, like the Army COE Combat Engineer and the Marine Corps Combat Engineer, are involved in the construction of "roads, airstrips, bridges, port facilities, power distribution systems, water and sewer lines, telephone systems, and any type of building the Navy can use" (68:7).

Civil Engineer Corps Officer Career Progression. As with the other three military services one of the main ways a U.S. Navy CEC company grade officer can develop the leadership skills and abilities needed to accomplish the Navy CEC mission is through career progression. The Navy Civil Engineer Corps Career Progression Guide states the following about career progression:

> Career planning from the Navy's viewpoint projects an orderly progression of assignments for a specified number of officers to meet the needs of the Navy. For you, career planning in the Navy is integrating your personal desires, needs, and qualifications with the requirements of the service. Properly done, career planning can satisfy both your needs and those of the Navy. [69:v]

The Navy Civil Engineer Corps Career Progression Guide goes on to state that:

> Each area of CEC duty offers the Civil Engineer Corps officer positions of increasing responsibility and authority. There is no typical career pattern for a CEC officer. Ideally, assignment will be made to a succession of jobs that ensure personal development to meet the many challenges of future assignments. The CEC officer can expect to rotate among the basic specialties with tour lengths from two to three years in each. By the fifteenth year, a career officer should have worked in all areas and will have formed a broad base of experience. [69:28]

The Navy CEC publication, The Navy Civil Engineer Corps, breaks out CEC position types by percentage in relation to the

overall force structure as follows (68:4):

1. Public Works: 35 percent

2. Contract Administration: 19 percent

3. Staff level: 19 percent

4. SEABEES: 15 percent

5. Other (to include facilities planning, petroleum engineering, or environmental protection): 12 percent

The career progression for Navy CEC company grade officers begins immediately after graduation from Civil Engineer Corps Officers School and spans three different development periods over a career (69:A-4). The first several assignments that the CEC company grade officers serve in gives them both responsibility and leadership opportunity. For example, the CEC lieutenant is put in charge of a construction company in a construction battalion (the SEABEES), the administration of millions of dollars worth of construction contracts (Contract Administration), or the management of the resources needed to maintain millions of dollars worth of shore facilities (Public Works) (69:32-33). The Navy Civil Engineer Corps Career Planning Guide describes the three career progression development periods for Navy CEC officers as follows:

1. Basic Development Period (0 through 9 years): During the first two years of this period the CEC officer will have initial assignments such as Assistant Company Commander in the SEABEES, Assistant Resident Officer in Charge of Construction in a medium/large office, or work in the Public Works Unit at

a large station. During the next six years the CEC officer should average three assignments such as Company Commander in the SEABEES, staff engineer in a small staff, Resident Officer in Charge of Construction in a small office, or Public Works Officer at a small station. At approximately the third year of service, the CEC officer should begin looking into applying for post-graduate school and refresher courses in order to stay current with ever changing technology (69:A-4).

2. Midgrade Engineering and Management Development Period (10 through 15 years): During this six year period the CEC officer will have approximately two to three assignments such as Assistant Public Work Officer at a large station, Public Works Officer at a medium station, Resident Officer in Charge of Construction at a medium office, Assistant Resident Officer in Charge of Construction at a large office, a staff engineer, or an Executive/Operations Officer in the SEABEES. As a continuation effort from the first period until approximately the tenth year of service the CEC officer should continue to attend post-graduate school and refresher courses. At approximately the eleventh year of service, the CEC officer should begin plans to attend one of the schools in the Service College Program: Armed Forces Staff College, Naval War College, Command and Staff Course, the Industrial College of the Armed Forces, or National War College (69:A-4).

3. Command and Advanced Engineering Management Period (16 through 28 years): During this period the CEC officer will have four to six assignments spanning two rank

structures. First, as a Commander (O-5), assignments include Public Works Officer at a large station, Assistant Public Works Officer at a major station, Executive Officer at a Public Works Center, Resident Officer in Charge of Construction at a large office, Commanding Officer in the SEABEES, or staff engineer as Assistant Navy-wide Facilities Engineer. Second, as a Captain (O-6), assignments include a major SEABEE assignment, Executive Officer Engineering Field Division, Commanding Officer of Public Works Center or Engineering Field Division, Officer in Charge of Construction, or staff engineer as Navy-wide Facilities Engineer. During this period until approximately the twenty-third year of service, the CEC officer should continue to try to enter the Service College Program described in the second development period (69:A-4).

Even though the Navy CEC is similar to that of the U.S. Air Force CE, it can be seen by the initial assignments Navy CEC officers receive that they are given the opportunity to lead a unit or increased responsibility approximately four years earlier as compared with U.S. Air Force CE counterparts. In this area, U.S. Navy CEC officers compare with both U.S. Army and U.S. Marine Corps company grade engineering officers.

Leadership Education and Training Programs and Development Opportunities. As with the other three services the U.S. Navy needs to develop the leadership skills and abilities in company grade officers in order for the mission to be effectively accomplished. The Navy CEC view towards

leadership education and training programs and development opportunities can best be summed up in the following statement found in the Navy Civil Engineer Corps Accession Guide:

> The facilities for supporting the modern Navy are becoming increasingly complex, and the engineering required to plan, design, construct, operate, and maintain these vital support facilities is becoming more sophisticated. The Navy can best prepare its officers for the demands of tomorrow by an aggressive and flexible program of training and education to broaden engineering and management knowledge and build technical competence. [67:11]

The initial development of leadership skills and abilities for Navy CEC company grade officers is through one of three main commissioning sources: U.S. Naval Academy, Officer Candidate School, or Naval Reserve Officers Training Corps. These programs are similar to the other three services in that each one provides the Navy CEC company grade officer the basic foundation on which individual leadership skills and abilities needed for a successful career are built.

There are two additional ways in which the Navy CEC obtains officers. The first is through the CEC Officer Candidate (Collegiate) Program. This program pays qualified male and female candidates in an accredited university working on a bachelor of science degree in the senior year or on a masters degree in the final year of completion. Once the candidate graduates they report to Officer Canidate School for initial training. The other method is through a lateral transfer. Qualifed officers with an appropriate accredited degree can apply for a lateral transfer to the Navy CEC. If

accepted, the officer reports to Civil Engineer Corps Officers School for initial CEC training (67:3-6).

The first professional leadership development program that Navy CEC company grade officers receive is the Civil Engineer Corps Officer School Basic Qualification Course taught at the Civil Engineer Corps Officer School at Port Hueneme, California. This is an eight week course that teaches the new CEC officer the role of the CEC in the Navy, as well as prepares the officer to "hit the ground running" in initial Navy CEC duty assignments (67:7). During the first two weeks of the course the officers are taught the fundamentals of all CEC assignments (69:10). The Navy Civil Engineer Corps Accession Guide lists these fundamentals as [67:7]:

1. Human Relations
2. Navy Organization
3. Professional Development
4. Management
5. Organization
6. Network Analysis
7. Financial Management
8. Military Training
9. Military and Civilian Personnel
10. Military Justice

During the third and fourth weeks of the course the officers enter separate tracks depending on initial duty assignments. The Navy Civil Engineer Corps Career Planning

Guide lists the subjects covered during these two weeks as [69:10]:

1. Civilian Personnel Management
2. Enlisted Personnel Administration
3. Navy Industrial Fund
4. Shore Facilities Planning
5. Military Training

During the last four weeks the CEC officer receives training in the specialty of the first duty assignment. This assignment is based on individual job preference, location of choice, academic background, and most importantly the needs and requirements of the U.S. Navy. The studies during these two weeks are centered around Public Works Management, Contract Administration, or Construction Battalion Operations, which will give the officer the basic fundamentals of the respective specialty (67:7-8).

To keep up with technology the U.S. Navy developed the Subspecialty System, which allows the CEC officer to receive additional education and training through post graduate education in skills that are beyond the education normally received during undergraduate studies. Types of subspecialties that require advanced education are: Facilities Engineering, Petroleum Engineering, Ocean Engineering, and Computer Systems. The CEC officers selected for these subspecialties are chosen based on individual performance, academic record, and the needs of the Navy. As with any education received through post graduate work in the

military services, the individual is utilized in that skill upon graduation in order to receive the benefits from the individual's education and new skills (69:10-13).

For the Navy CEC officers who do not have the opportunity to receive post graduate work and to enhance the studies of those who do, the U.S. Navy has Civil Engineer Corps Officer School sponsors short courses. These courses are designed to give the Navy CEC officer a better background in subjects that are needed to accomplish the mission. Examples of these one to two week courses are: Energy Management, Environmental Protection, and Shore Facilities Planning (69:14). In addition, these courses are similar to the Professional Continuing Education short courses offered to U.S. Air Force CE officers at the Air Force Institute of Technology School of Civil Engineering.

The next professional education and training for CEC company grade officers comes at approximately the seventh to ninth year of service through the first of two refresher courses taught at the Civil Engineer Corps Officer School. The first refresher course is eight days in length and, according the Navy Civil Engineer Corps Career Planning Guide, the course is "designed to bring the student up to date on the current status of the Civil Engineer Corps and the programs it manages in support of the operating forces of the Navy" (69:14). The second refresher course comes at the 13 to 14 year point of service and is designed to teach the CEC officer subjects such as: Navy planning, budgeting, programming, and

the concepts and organization of the Naval Facilities Engineering Command (69:14).

As can be seen, the education and training a Navy CEC officer receives during the first ten years of service is based on meeting the technical and managerial needs of the U.S. Navy. This is similar to the way the U.S. Air Force handles the training needs of CE company grade officers. However, the big difference is that, like the U.S. Army and U.S. Marine Corps, Navy CEC company grade officers are given the opportunity to lead a unit or receive additional responsibility on the average four years earlier than U.S. Air Force counterparts.

Leadership Development of Young Managers in Corporate Organizations

Corporate organizations, whether they be large or small, are seemingly much different than the four military services described earlier in this chapter. However, just like the military, corporate organizations have the same driving goal of training and developing leadership skills and abilities in young managers in order for them to be effective leaders in the organization and business world.

Even though this research only examined three corporate organizations: McDonnell Douglas, IBM, and General Motors, it should be noted that there are hundreds of other U.S. corporate organizations who fall into the above introductory statement. In addition, due to the similarity in the career

progression and the leadership education and training programs and development opportunities for young managers in each of the three examined corporate organizations, they will be examined together in respect to these similar areas with only the highlights and differences of each brought out.

Mission of Corporate Organizations. There is no set defined overall mission of corporate organizations and what each one should strive for in the way of corporate success. However, Mr. Charles T. Hutchinson, a Fellow of the Center for the Study of Values at the University of Delaware, gives examples in his November-December 1983 Business Horizons article entitled "Prospectus for Corporate Leadership" of what some top executives say the mission of corporate organizations is:

> 1. The basic goal of private enterprise remains what it has always been--to produce needed goods, earn a fair return on investment and succeed as an economic institution. But the new dimension that must be observed--a new bottom line for business, really--is social approval. Without it, economic victory would be Pyrrhic indeed--Thornton Bradshaw, RCA.
>
> 2. Society granted our corporate charter . . . clearly this is a privilege subject to whatever requirements it decides to impose. We will continue in business only as long as we reasonably meet those requirements--Coy G. Eklund, Equitable Life Assurance Society of the United States.
>
> 3. We believe that business exists for one purpose only: to serve society. Profit is our reward for serving society well--William A. Andres, Dayton Hudson Corporation. [52:33-34]

As can be seen from these general ideas of what executives perceive to be the mission of corporate organizations one best

general mission statement can be obtained: "to serve society" (52:34).

Mr Hutchinson goes on to list five ways in which this mission of serving society is fulfilled [52:34]:

> 1. To provide socially needed goods and services of acceptable quality at reasonable prices.
>
> 2. To create and maintain an internal organization and culture in which personal and group achievement, growth[,] and fulfillment thrive.
>
> 3. To attain and sustain net income sufficient both to perpetuate the enterprise and yield a return on investment satisfactory to the stockholders involved.
>
> 4. To protect, preserve, and enhance social, cultural, and physical environmental conditions wherever the operations of the enterprise are located and wherever its products and services may go.
>
> 5. To communicate openly, honestly, and voluntarily relevant information concerning all of these activities to all constituencies concerned.

To accomplish this mission each corporate organization needs young managers who possess the necessary leadership skills and abilities obtained through an aggressive career development plan, a good leadership education and training program, and good leadership development opportunities.

Manager Career Progression and Planning. As with the military one of the ways a young manager can develop the necessary leadership skills and abilities needed in the business world is through career progression. There are various, but very similar, career progression patterns for young managers among the three corporate organizations that were examined.

There are distinct management levels in corporate organizations ranging from first line manager to top executive that must be filled by young managers. The ability to get promoted to these different levels in the corporate structure is not based on a certain set time in the organization or in a position, but rather promotion is based on factors such as availabilty of next higher position opening, possessing the requirements to effectively perform the job, and most importantly being the best promotional candidate at the time of the position opening (61:19).

For example, according to Ms. Heather Duffy, Director of Management Development, IBM Corporation, there are three distinct management levels in the IBM corporate structure. These three management levels are: First line manager, middle management, and executive (33).

As a first line manager the individual is in charge of a section with varying numbers of personnel being supervised. This position could be the first job the individual takes in the corporation or it could come after working in that section for awhile, then being promoted into the position (33).

In the middle management level the individual is in second, third, fourth, and fifth line management. Here the individual is a manager of managers. For example, second line managers are in charge of first line managers and so on. Some of these individuals who do not possess the necessary requirements to become executives in the organization stay in

this level progressing to the top level of middle management (i.e. a department head) until they retire. Some of the factors looked at to determine whether an individual has the potential to be promoted to an executive position are: the ability of the individual to prove they can do the job, the past performance record of the individual, and whether they are promoteable (33).

The transition from the first line manager and the middle management level to the next level, the executive level, should come at approximately the twelfth year of service in the organization. At this point the individual is groomed for the executive positions in the organization (33).

Both McDonnell Douglas and General Motors are similar to IBM in the area of the three tiered level of career progression for young managers. The big difference comes in how each corporate organization separates individuals who do and do not have the potential of becoming top executives in the organization.

For example, according to Mr. Joseph J. Doyle, Manager General Motors Education and Training Personnel Administration and Development Staff, General Motors classifies individuals into four groups of potential. First, Group One has "A-type" immediately promoteable individuals who have the potential for becoming a vice president or a general manager of one of the divisions in General Motors (i.e. Buick or Chevrolet). Second, Group Two has individuals who have the long range potential for becoming a vice president. Third, Group Three

has individuals who have the potential of becoming a director in the line organization. Fourth, Group Four has individuals who are promoteable within the staff level of the orgranization (32).

From the review of the literature in this area the emphasis in the corporate world seems to be more on career planning than career progression. The reason for this is the fact that there is no set time in a career when an individual will be promoted. Therefore, the individual must plan out a career which will afford the best opportunity to develop into the leader that the organization will want to promote to the executive level. Career planning will not assure that the individual will get the desired job, but it is a step in the right direction to get into the corporate track on the way to the executive level of management described earlier. The following are examples of career plans for individuals in corporate organizations developed by two individuals who have been in the career planning business for nearly 20 years.

First, Mr. John J. Herring, Jr., a managing partner for the Memphis, Tennessee office of Fleming Associates, states in his Managerial Planning article entitled "Professionally Plan Your Career" that career planning is "a logical, systematic method of selecting and preparing oneself for a career" and "is the only way to attain any degree of security in our rapidly changing work environment" (50:55). Mr Herring goes on to list the following seven steps that can be used by

individuals in the development of a career plan (50:56-57):

1. Take personal inventory: This is a listing of individual assets and liabilities.

2. Set personal goals: This is the determination of what the individual wants out of life and whether they are willing to pay the price for success in a career.

3. Research the market: This is the determination of which organization will work best for the individual in meeting individual goals and objectives.

4. Evaluate personal skills: This determines what skills, education, and training the individual needs to get the desired job.

5. Establish mileposts: Identify goals and objectives that can be evaluated along the career path of the individual.

6. Continually recycle the plan: Review plan on a regular basis and revise it as necessary.

7. Keep it simple: Make the plan uncomplicated so that the individual is willing to work it and follow it.

Second, Mr. Frank W. Archer, President of Management Development Associates in Louisville, Kentucky, states in his Personnel Journal article entitled "Charting a Career Course" that, "nearly everyone in business today would agree that careful planning is essential for any employee wishing to get the most out of his or her career" (5:60). Mr. Archer goes on to list the following five steps that can be used by individuals in the development of a career plan:

1. Establish a position objective: Where does the individual want to be in the organization four to five years from now? This is the desired position objective (5:62).

2. Describe the position content: This is a job description prepared by the employee who is currently in the desired position listed in Step One. This position description includes the skills and work experience necessary to do the job (5:63).

3. Identify development needs: What skills does the individual need to possess in order to work in the position objective listed in Step One (5:63)?

4. Set up a development plan: This is the establishment of a timetable for acquiring the skills and knowledge needed for the position objective listed in Step One (5:63).

5. Acquire the necessary credentials: This step is probably the most important in that it lets people in the organization know that an individual has the proper qualifications to do the desired job listed in Step One (5:63).

This career plan is just the first step in the career progression of the young manager. It now takes an aggressive training program that is offered by the organization in order for the young manager to develop into the leader that is required by the organization.

Leadership Education and Training Programs and Development Opportunities. The aggressive training program mentioned in the previous section is echoed in the training

philosophy of General Motors listed in the General Motors Education and Training 1986 Catalog of Programs and Services:

> The worldwide performance of General Motors is the result of the performance of each person in the Corporation. The purpose of training is to increase the effectiveness of individuals to enable them to contribute to the Corporation's mission and implement its guiding principles. Thus, the goal of training is of mutual benefit--for the individual and the Corporation. This is accomplished by enhancing employes' knowledge, skills and attitudes that have a positive impact upon job performance and to help them reach their fullest potential as members of the General Motors team. [39:3]

This training philosophy can be translated into the training goals of all corporate organizations in efforts to develop the managers that are needed in today's business world.

As with the military services the challenge of developing leadership skills and abilities in young managers is an interesting one. According to Harry Levinson, President of the Levinson Institute, Cambridge, Massachusetts, most young managers and executives in corporate organizations are fresh from school and immediately become involved in doing a job and trying to prove themselves, with emphasis on "a narrow, tactical, or doing orientation" (57:84). This works for the first three management levels in organizations, which is similar to company grade officers in the military. However, as managers rise in the organizational structure they begin to think more broadly, understand more comprehensively, and act in a more sophisticated manner (57:84). For this to happen corporate organizations need training programs which will develop the leadership skills and abilities of young managers

in order for them to effectively accomplish the mission of the organization.

The leadership education and training programs of the three corporate organizations that were examined are virtually the same except in the way they are offered to the individual. Each of the programs offer courses and schools to young managers at the different management levels.

According to Ms. Heather Duffy, Director of Management Development, IBM Corporation, the IBM training program for young managers and executives is as follows:

1. First line manager: Within 30 days of becoming a manager the individual is sent to a one week school where the individual is taught the following subjects:

   a. Personnel policies
   b. Leadership theories
   c. People management
   d. Communication skills
   e. Heritage and culture of IBM

After this the individual goes back to school every year for one week to a Operating Manangement School to receive more people management training (33).

2. Middle management level (second through fifth line management): Within 90 days of becoming a manager in one of these levels the individual is sent to a one week Corporate School where the individual is taught the following:

   a. People management
   b. Management training at this higher level

After this the individual goes back to school every year for one week to an Operating Unit School to receive more people management training and branch training in the individual's assigned branch in IBM (33).

3. Executive level: Within the first year of becoming an executive the individual is sent to a three week General Management School where the individual is taught the higher level management techniques that executives need to succeed in the business world. After this initial training the training comes every five years at both IBM and major universities to keep the executive abreast of current management trends (33).

The McDonnell Douglas Corporation offers a series of one to three day courses for young managers that are used to develop the required individual leadership skills and abilities at the various management levels in the corporation. One such series is a four step series offered to first and second line supervisors that goes from beginning supervisor to workshops that enhance the training of the program. The following is a brief outline of this training series:

1. McDonnell Douglas Corporation New Supervisors Course: This is a three day course for personnel new to the job of supervising. This course teaches the new manager the following: first line supervisors roles and responsibilities, leadership fundamentals, communication techniques, and organizational structures and policies (64:n.p.).

2. Leadership Development Program I: This is a three day course offered to first and second line supervisors nine

to twelve months after the New Supervisors Course. This course addresses topics such as motivation and leadership styles (62:n.p.).

3. Leadership Development Program II: This is a three day course offered to first and second line supervisors twelve to fifteen months after Leadership Development Program I. This course reinforces the subjects taught in the first development course. In addition, the course goes on to teach the individual the needed supervisory skills such as scheduling, improving performance, and optimizing available resources (63:n.p.).

4. The final step in this series is the management workshops that address the concerns of the supervisor in a specific area (63:n.p.).

McDonnell Douglas offers the same type of management development programs for middle managers. Each step of the program is designed to build upon the other steps and to provide the manager and executive with the required training in order for them to effectively handle the role of being a manager or executive.

General Motors has similar management development programs that are offered to the individual at various career points. One of the big differences with General Motors in respect to other corporate organizations is the General Motors Institute, "the only accredited undergraduate college maintained by a single industrial corporation" (40:5). According to the General Motors Institute Engineering and

Industrial Administration Programs 1974-1975 Catalog, the General Motors Institute is:

> An accredited college of engineering and management operating on the cooperative plan of education in which students alternate between periods of academic study on the campus in Flint and related work experience in 150 sponsoring units of the General Motors Corporation throughout the United States and Canada. [40:5]

This college program is a five year program that, according to the General Motors Institute Catalog, is designed "to contribute to the development of young men and women for careers of technical and management responsibility in the General Motors Corporation" (40:7). The program is divided into two phases: the cooperative phase and the degree phase. The cooperative phase constitutes the first four and a half years of the program. During this time the student spends alternating six week periods between the General Motors Institute and a sponsoring General Motors unit to gain valuable work experience in the General Motors process. The degree phase, which is the last part of the program, is designed so that the student can further develop individual skills in communication and problem solving that will be useful as they become part of the General Motors team after graduation (40:8,10). Not all managers and executives in the General Motors corporate structure have graduated from the General Motors Institute. However, those managers and executives that have are well represented in positions throughout the General Motors corporate structure ranging from

president to sales manager and most of the positions in between (40:5).

As can be seen by the leadership education and training programs available to young managers the training is based on promotion potential of the individual and a position vacancy at the right time in the individual's career. In addition, it can be seen that corporate organizations have basically the same type of leadership training and development programs for young managers, with the goal of developing the leadership skills and abilities in these individuals in order for them to effectively accomplish the mission of the organization.

Comparison of Leadership Development Methods

A vital part of the development of the leadership development model for U.S. Air Force CE company grade officers is the determination of whether the methods used by the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations such as McDonnell Douglas, IBM, and General Motors, to develop leadership skills and abilities in company grade engineering officers and young managers can be tailored to meet U.S. Air Force CE needs. To make this determination comparisons were made in the following areas:

1. The career progression and development of company grade engineering officers in the four military services and of young managers in corporate organizations (Table 4.1).

2. The professional leadership development programs of the four military services and corporate organizations used to

develop individual leadership skills and abilities (Table 4.2).

3. The first two or three typical assignments of company grade engineering officers in the four military services and of young managers in corporate organizations used to begin the initial on-the-job leadership development of these officers and managers (Table 4.3).

Even though this research examined all ranks in the military (O-1, lieutenant, through O-6, colonel) and all management levels in corporate organizations, the comparisons in these tables include only company grade engineering officers and young managers (approximately the 12 year point of a career).

Table 4.1
Comparison of Career Progression and Development

Organization	Progression and Development Phase	
	Initial	Intermediate
Air Force	0 - 3 years (Initial) Base level assignment in academic specialty. Training through the Air Force Institute of Technology (AFIT) short courses, Squadron Officer School (SOS) by correspondence, and The Lieutenant's Professional Development Program.	4 - 11 years (Intermediate) Rotation through CE organization, staff job at major command level. Training and education through AFIT short courses, SOS, Air Command and Staff College by correspondence, and graduate studies.

Table 4.1 continued next page

Table 4.1
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Organization	Progression and Development Phase	
	Initial	Intermediate
Army	0 - 8 years (Basic Development) Develop basic leadership and soldiering skills and abilities. Company level assignments. Training through Engineer Officer Basic Course, Engineer Officer Advanced Course, and graduate studies.	9 - 16 years (Professional Broadening) Different command and staff positions throughout COE structure. Training through Combined Arms and Services Staff School and Army Command and General Staff College by correspondence.
Marine Corps	0 - 6 years (Initial) Combat Engineer Company level and HQ level assignments. Non-Fleet Marine Force assignments. Training through The Basic School, Marine Corps Engineer School, Amphibious Warfare School, and Engineer Officer Advanced Course.	7 - 13 years (Intermediate) Combat Engineer Company and battalion level and HQ level assignments. Train-through intermediate level school.
Navy	0 - 9 years (Basic Development) Various assignments in Public Works, Contract Administration, and the SEABEES. Training through Civil Engineer Officers School Basic Qualification Course, Civil Engineer Corps Officer School (CEOS) short courses, CEOS refresher courses, and graduate studies.	10 - 15 years (Midgrade Development) Various assignments at higher levels in the SEABEES, Public Works, and Contract Administration. Training through CEOS short courses, graduate studies, and schools in the Service College Program (Armed Forces Staff College and Naval War College).

Table 4.1 continued next page

Table 4.1
(continued)

Organization	Progression and Development Phase	
	Initial	Intermediate
Corporate Organizations	0 - 5 years (First Line Managers) Positions held in the section or as a first line manager. Training through various management and corporate schools at initial job assignment and then once a year.	7 - 12 years (Middle Management) Positions held in the second, third, fourth, and fifth levels of management (i.e. a manager of managers). Training through various management and corporate schools at initial job assignment and then once a year.

Table 4.2
Comparison of Professional Leadership Development Programs

Organization	Leadership Development Programs
Air Force	* Commissioning sources * Lieutenant's Professional Development Program (two week program; received during first two years of service) * Squadron Officer School (Resident and/or correspondence) (8 1/2 week course; received between second and seventh year of service) * Air Force Institute of Technology School of Civil Engineering short courses (two to three week courses; received continuous throughout career) * Air Command and Staff College (correspondence)

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Table 4.2
(continued)

Organization	Leadership Development Programs
Army	* Commissioning sources * Engineer Officer Basic Course (EOBC) (15 week course; received immediately after commissioning) * Engineer Officer Advanced Course (six month course; received three to five years after completion of EOBC) * Combined Arms and Services Staff School (completion prior to tenth year of service) * Army Command and General Staff College (taken by correspondence between ninth and sixteenth year of service)
Marine Corps	* Commissioning source * The Basic Officer Course (23 week course; received immediately after commissioning) * Combat Engineer Officer Course (10 week course; received immediately after graduation from The Basic Officer Course) * Amphibious Warfare School (39 week course; received when individual makes captain; only 3 engineers attend this course each year) * Engineer Officer Advanced Course (six month course; received after Amphibious Wafare School)
Navy	* Commissioning source * Civil Engineer Corps Officer School (CECOS) Basic Qualification Course (eight week course; received immediately after commissioning) * CECOS short courses (one to two week courses; received continuous throughout career)

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Table 4.2
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Organization	Leadership Development Programs
Navy (continued)	* CECOS first refresher course (eight day course; received between the seventh and ninth year of service) * CECOS second refresher course (offered at the 13 to 14 year point of service) * Service College Program (schools such as, Armed Forces Staff College and Naval War College; received between the 10 and 15 year point of service)
Corporate Organizations (length of the course depends on particular organization)	* Initial management training at a management or corporate school for first line managers (usually received within 30 days after becoming a first line manager) * Yearly follow-up management training for first line managers usually at a corporate school * Initial management training at a management or corporate school for second through fifth line managers (usually received within 90 days after becoming a second to fifth line manager) * Yearly follow-up management training for second through fifth line managers usually at a corporate school * Initial management training at a corporate school for executives (usually received within one year of becoming an executive) * Follow-up management training given approximately every five years at corporate school and major universities * Leadership and development programs given throughout a career (usually one day to one week courses)

Table 4.3
Comparison of Assignments

Organization	Typical Initial Assignments (0 - 4 years)	Typical Second and Third Assignments (5 - 12 years)
Air Force	CE Squadron, usually in the engineering section to utilize academic specialties and a few positions such as Chief of Readiness, Chief of Resources, and Chief of Engineering RED HORSE Squadron	Various positions in the CE Squadron such as Chief of Readiness, Chief of Operations, Chief of Engineering, and Chief of Resources Major command or staff level assignments
Army	Platoon Leader, Combat Engineer Platoon Company Executive Officer Battalion Staff Officer	Company Commander, Combat Engineer Company Battalion/Brigade Staff Officer Recruiting Area Commander
Marine Corps	Platoon Leader in Combat Engineer Company Platoon Leader in Engineer Company Staff Officer Executive officer in Engineer Company Marine Barracks Officer-In-Charge	Company Commander of Combat Engineer Company Company Commander of Engineer Company Staff Officer HQ level staff job Inspector/Instructor at a reserve unit

Table 4.3 continued next page

Table 4.3
(continued)

Organization	Typical Initial Assignments (0 - 4 years)	Typical Second and Third Assignments (5 - 12 years)
Navy	Platoon Leader in a SEABEES company Assistant Company Commander in a SEABEES company Public Works Section at a large station Assistant Resident Officer in Charge of Construction in a medium office	Company Commander in a SEABEES Company Public Works Officer at a small station Resident Officer in Charge of Construction in a small office Assistent Resident Officer in Charge of Construction in a medium office Public Works Section at a large station Executive Offcier in a SEABEES Company Staff level engineer Public Works Officer at a medium station
Corporate Organizations	Office level in a section of a corporation First line manager Second line manager	Second line manager Third line manager Fourth line manager Fifth line manager Executive level
	Note These line manager positions range from sales managers to plant managers and position titles depend on the particular organization.	

Summary

This chapter first examined the leadership development education and training programs and opportunities available to U.S. Air Force CE and whether these programs and opportunities are adequate in developing individual leadership skills and abilities. Second, this chapter examined the methods used by the U.S. Army, U.S. Marine Corps, U.S. Navy and corporate organizations such as McDonnell Douglas, IBM, and General Motors, to develop leadership skills and abilities in company grade engineering officers and young managers. This review also included the mission statements and the career progression of engineering officers in the four military services and of managers in corporate organizations.

Finally, this chapter compared the leadership development methods for U.S. Air Force CE company grade officers to the leadership development methods for engineering officers in the U.S. Army, U.S. Marine Corps, and U.S. Navy and the leadership and management development for young managers at McDonnell Douglas, IBM, and General Motors. This comparison included: career progression and development, professional leadership development programs, and assignments.

This review and comparison revealed two key points that need to be addressed by the U.S. Air Force CE community. These points will be discussed briefly here and in more detail in Chapter VI and VII because of the role they play in the development of the leadership development model for U.S. Air

Force CE company grade officers and the recommendations of this research.

First, it must be determined whether the methods used by the U.S. Air Force in developing the leadership skills and abilities in CE company grade officers in order for them to effectively handle the role of leading CE personnel in the accomplishment of CE's mission are adequate. The professional development (i.e. Squadron Officer School, Lieutenants' Professional Development Program, and Air Force Institute of Technology School of Civil Engineering short courses) of company grade officers seems to provide the necessary leadership development required by Air Force CE company grade officers as they move through their careers. However, the problem with this development is that some Air Force CE company grade officers do not have the opportunity to attend these courses.

The problem with leadership development for CE company grade officers comes in the area of on-the-job leadership development. As mentioned in Chapter I, it is in the area of leadership development for Air Force CE company grade officers that the problem exists. Home station Prime BEEF training once every 12 months and contingency training optimistically every 24 months at Eglin AFB, Florida, are not adequate opportunities in which to develop the leadership skills and abilities needed by CE company grade officers in order for them to effectively accomplish CE's mission. In addition, there are not enough day-to-day leadership development

opportunities such as Prime BEEF projects, Prime BEEF training, and additional duties to adequately prepare the officer for the role of leading CE personnel. In the leadership development model described in Chapter VI and the recommendations listed in Chapter VII these problems and possible ways to resolve them are addressed.

Second, it must be determined whether the methods used by the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations to develop leadership skills and abilities in company grade engineering officers and young managers can be tailored to meet U.S. Air Force CE needs. The most prominent difference, as shown by Table 4.2 and Table 4.3, between the leadership development of U.S. Air Force CE company grade officers and the U.S. Army, U.S. Marine Corps, and U.S. Navy is twofold.

1. Company grade engineering officers in the other three military services receive initial leadership and technical training through their respective engineering schools immediately upon coming on active duty.

2. Company grade engineering officers in the other three military services are given the opportunity to lead a unit or section on the average four years earlier than U.S. Air Force CE counterparts.

In the case of corporate organizations, as shown by Table 4.2, the most prominent difference between the leadership development of young managers in corporate organizations and U.S. Air Force CE company grade officers is how young managers

in corporate organizations receive initial and yearly leadership and management training after being promoted to first line manager.

The way these methods are used by the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations to develop and enhance leadership skills and abilities in company grade engineering officers and young managers suggests that these methods can be tailored to meet U.S. Air Force CE needs. By patterning current Air Force CE training and initial assignments of Air Force CE company grade officers after these methods, coupled with current Air Force leadership development programs and recommendations of this research, U.S. Air Force CE should have the officers it needs to effectively accomplish the CE mission.

V. Exercise SALTY DEMO Review

Chapter Overview

This chapter reviews the purpose, primary objective, and schedule of Exercise SALTY DEMO, the leadership and training problems that were encountered in the Air Force CE portion of the exercise, and what can be done in CE's peacetime training environment to develop individual leadership skills and abilities needed by CE company grade officers to prevent the same problems from occurring again in future exercises or war.

Exercise Purpose, Primary Objective, and Schedule

From 29 April 1985 to 17 May 1985, Air Force Systems Command and the United States Air Forces in Europe (USAFE) co-sponsored Exercise SALTY DEMO. SALTY DEMO is the code name given to the Air Force demonstration conducted at Spangdahlem Air Base, West Germany (9). In an Executive Engineering Management Symposium presentation to Air Force Institute of Technology Graduate Engineering Management students, as well as during personal and telephone interviews and personal correspondence, Colonel Darrell Bittle, USAF, Director Air Base Survivability, Systems Management Office at Eglin AFB, Florida, gave a thorough description of Exercise SALTY DEMO.

First, as a general overview of the exercise, Exercise SALTY DEMO was a fully integrated demonstration of air base survivability capabilities of a USAFE Main Operating Base, which employed in-place air base survivability capabilities,

recently fielded systems, and developmental items. In an effort to provide as much wartime realism and credibility as possible, the demonstration was conducted at Spangdahlem AB by the 52nd Tactical Fighter Wing under methods similar to a unit readiness exercise. However, even though the exercise was conducted under these methods the demonstration was not a tactical evaluation of the 52nd Tactical Fighter Wing's combat readiness (9).

Second, the purpose of Exercise SALTY DEMO was threefold:

1. To realistically exercise integrated air base survivability elements, to include FY 85 capabilities and new technologies.

2. To measure the sortie generation capability of a main operating base after an attack.

3. To provide decision making information for acceptance and continued development of improved air base survivability capabilities (9;10).

Third, a primary objective of Exercise SALTY DEMO, "was to demonstrate the integration of air base survivability initiatives" (9). In order to achieve this objective the exercise was designed to:

1. Demonstrate integrated performance of air base survivability elements.

2. Evaluate the contributions of air base survivability initiatives to improve current base [illegible] procedures.

3. Provide information for guiding current and future development decisions.

4. Establish a data base to enhance future development of air base survivability concepts and procedures (9;10).

Finally, Exercise SALTY DEMO opened with a training site environment, before the beginning of the demonstration, to allow base personnel to familiarize themselves with items and methods that would be used during the exercise. For example, Air Force CE personnel received training on new pieces of rapid runway repair equipment and the precast concrete slab and fiberglas mat crater repair methods that were used in the rapid runway repair portion of the exercise (65).

This pre-demonstration training period was followed by the three week demonstration period and two weeks of actual attack scenarios, separated by a one week "regroup" period (65). The following is a brief synopsis of each week in the demonstration period:

1. Week I: This week included demonstrations of current ABS capabilities, introduction to future ABS capabilities, and evaluations of new equipment and concepts. Examples of Week I activities included:

   a. Day one: Hostilities began with air and ground attacks.

   b. Day three: Reconstituted the 52nd Tactical Fighter Wing and evaluated the demonstration to date in order to make any necessary changes to policies and procedures.

   c. Day four: Another day of attacks.

2. Week II: This week was designed to recover and regroup from Week I and prepare for Week III.

3. Week III: This week followed a full five day wartime schedule. Examples of Week III activities included:

a. Day one: A full scale demonstration of rapid runway repair techniques.

b. Day three: Chemical attacks were used.

c. Days one and five: Conventional attacks (9;65).

Review of the Leadership and Training Problems

Although many results of Exercise SALTY DEMO may have been anticipated to some degree, one of the startling outcomes was the distinct lack of leadership and management in the rapid runway repair portion of the exercise (9;66;74;81). According to both Colonel Bittle and Lieutenant Colonel Paul McNickle, USAF, Chief of Readiness, HQ USAF, the Air Force CE leaders of the rapid runway repair phase of the exercise failed to recognize wartime problems, such as work shifts, meal breaks, and rest breaks for personnel, and what to do once these problems were recognized (10;66). This can be translated into a failure of basic leadership traits and principles such as judgement, decisiveness, and caring for your people that should have been used by CE leaders in order to accomplish the mission.

As explained by Colonel Bittle, there was no direct involvement of Air Force CE officers with the rapid runway repair crews because the CE officer who normally works with

the rapid runway repair crews at Spangdahlem AB was assigned as a "trusted agent" during the exercise. However, Colonel Bittle went on to explain that the leadership, management, and planning, as well as the extra set of eyes provided by a rapid runway repair knowledgeable officer, could have alleviated many of the resource shortfalls, planning errors, and gaps in supervision created by the rapidly changing demonstration scene (8).

This observation was emphasized in interviews with two assessors (evaluators) of the Air Force CE portion of Exercise SALTY DEMO with the following comments. First, Captain Rodger G. Schuld, USAF, an instructor in the Contingency Engineering Course at Air Force Institute of Technology who served as an assessor on the Demonstration Control Team for the exercise, noted that the lack of officers in the rapid runway repair portion of the exercise created problems both from the technical side, but more from the leadership side. Capt Schuld went on to say that even though there were noncommissioned officers working the problem from the task side, officer involvement was needed in order to get the "big picture" and keep the accomplishment of the mission going from a troop leadership perspective. From this perspective are items such as motivation of personnel when things are not going as planned, work breaks, scheduling of work, and an overall knowledge of the task at hand. These items cannot be seen by an individual who is working down in the trenches and who is unable to step back and look at the "big picture" (74).

Second, Captain Jeff Thomas, USAF, Executive Officer DCS/Engineering and Services HQ AFLC who served as an assessor on the Facility Repair Team for the exercise, stated that the lack of officers in the rapid runway repair phase of the exercise was a deterrent to the accomplishment of the mission. The reason for this was because no one could see the "big picture". As a result of not having someone to look at the overall scheme of things, there were no food breaks, work breaks, and things were being done twice. Captain Thomas went on to say that Air Force CE has always had the personnel and capability to get the job done, but we need officers to put it together and see the "big picture" (81).

Exercise SALTY DEMO brought out the fact that Air Force CE needs officers in the rapid runway repair portion of the mission and that Air Force CE needs to change some of the current leadership development training methods for CE company grade officers in order for them to effectively accomplish CE's mission. Air Force CE needs officers to provide the leadership that is vital in seeing the "big picture" and to keep things going when nothing else seems to work.

The need for putting Air Force CE officers in the field portion of rapid runway repair to help resolve the problems mentioned earlier was recognized because of the events of Exercise SALTY DEMO. The rapid runway repair training Air Force CE personnel receive at Field 4, Eglin AFB, Florida, and Ramstein AB, West Germany, has been changed from leaving the CE officer in the command post during the rapid runway repair

exercise, as done in past training scenarios, to including CE officers in both the field and command post portions of rapid runway repair exercises (66;74).

In the area of training, Air Force CE crews exhibited more efficiency and productivity in the pre-demonstration training period than compared to the actual three week demonstration. This is because during the pre-demonstration training period only one crater at a time was repaired, while during the three week demonstration there were multiple craters that had to be repaired at once. The improvements in the repair quality of the craters over the course of the pre-demonstration training period were attributable to constructive criticism, technique clarifications from experienced observers and familiarity gained through repetition. This steady improvement underscores the need for more detailed guidance and comprehensive training programs and more realistic and demanding exercises in an environment such as that provided by Exercise SALTY DEMO (8;66).

Colonel John S. Choate, USAF, Chief Plans Division Directorate Engineering and Services HQ USAF, summarized some of the pertinent problems of Exercise SALTY DEMO in a letter to Headquarters Air Force Engineering and Services Center and several divisions of the Directorate of Engineering and Services, HQ USAF. The following is a synopsis of the leadership and training problems listed in the letter and what Air Force CE can do and is doing in the peacetime training environment to help develop the leadership skills and

abilities needed by CE Company grade officers in order to prevent the same problems from occurring again in future exercises or war [16]:

1. We need to organize and operate in peacetime the way we plan to fight in wartime.

Reason: Our evolving "Project Warrior" attitude needs to be reflected in our organizational concepts. Units/functions critical to wartime operations need to have a peacetime organization that can immediately transitor [sic] to wartime role with inherent leadership, management, and training.

2. Existing Wing/Base training programs need to include aggressive ABS training/exercise/inspections that employ challenging real-world threat scenarios.

Reason: Current training/exercises/evaluations focus on isolated/reduced scale functions (sortie generation, RRR, disaster response, etc) and are not a fully integrated approach to our true threat and mission.

3. Existing CONUS and overseas regional training sites need to conduct integrated training in a realistic threat environment.

Reason: Current training does not take into account support limitation such as POL shortages, minimum operating strip (MOS) availability, utility failure, etc.

4. Need to develop full-spectrum CONUS and theater air base complexes that will provide integrated comprehensive ABS training in a "generic COB" "Flag" exercise environment.

Reason: Integration of "combat events" throughout our wartime training is the "hardest hitter" with the most potential to evolve needed wartime capability!

Summary

Through a review of the leadership and training problems that were encountered in the Air Force CE portion of Exercise

SALTY DEMO this chapter brought out the fact that Air Force CE needs officers in rapid runway repair and that CE needs to change some of the current leadership development training methods for CE company grade officers in order for them to effectively accomplish CE's mission. Air Force CE needs officers to provide the leadership that is vital in seeing the "big picture" and to keep things going when nothing else seems to work.

In order to foster the leadership Air Force CE company grade officers need to enable them to lead CE personnel in accomplishing CE's mission, CE needs to reorganize current ways of thinking and train CE personnel in peacetime the way they will fight in wartime. This fundamental statement is echoed in the first two of eleven principles of leadership taught by the U.S. Army in FM 22-100, Military Leadership, "Know yourself and seek self-improvement" and, "Be technically and tactically proficient" (30:42). Only through realistic and demanding training can individuals know themselves and seek improvements in weak areas, as well as enhance proficiency along the way.

To accomplish the above statements this chapter also discussed some of the recommendations Air Force CE is reviewing and implementing which will help to develop the leadership skills and abilities needed by CE company grade officers to prevent the problems of Exercise SALTY DEMO from occurring again in future exercises or war.

VI. Leadership Development Model

Chapter Overview

This chapter describes the leadership development model for U.S. Air Force CE company grade officers. This chapter also contains an analysis of the eight research questions based on the information collected from the literature review and personal interviews. This analysis is the foundation for the leadership development model that will serve as a guide to both U.S. Air Force CE company grade officers and senior leaders for fostering the leadership skills and abilities needed in CE company grade officers in order for them to effectively handle the role of leading CE personnel in accomplishing CE's mission.

Analysis

Research Question 1. What is a common definition of leadership that U.S. Air Force CE company grade officers can apply in accomplishing CE's mission?

From examining the numerous leadership definitions found in both the military services and civilian world a common definition of leadership could not be found. However, it was found that each person has their own definition of what leadership is and how to apply it to meet the mission.

However, by looking at the common thread between these definitions, the people and the mission, a common definition of leadership is obtained that U.S. Air Force CE company grade

officers can apply in accomplishing CE's mission:

> Leadership requires an individual who can direct others in such a manner as to obtain and command their respect, confidence, and voluntary cooperation during times of normal and trying circumstances in order to accomplish the mission of the unit.

Research Question 2. What are the common leadership traits desired in leaders, which of the leadership principles should they practice, and how do these areas translate into the skills and abilities needed by U.S. Air Force CE company grade officers to lead personnel in wartime?

Leadership is derived from one main area--an individual's ability to combine certain leadership traits and principles to accomplish the mission. There are numerous leadership traits and principles that the military services and corporate organizations feel that company grade engineering officers and young managers should possess and practice. The leadership traits and principles of past and present as identified by the U.S. Air Force, U.S. Army, U.S. Marine Corps, U.S. Navy, and the corporate world were compared to see how they have changed over the years. This comparison showed that the leadership traits and principles identified by the four military services and the corporate world as being essential to effective leadership have hardly changed over the test of time. The individuals writing the leadership traits and principles have changed, but what is required to be an effective leader has not.

The most common leadership traits and principles found from the literature review of the four military services and corporate world are as follows:

1. Common leadership traits:

    a. Integrity

    b. Initiative

    c. Dependability

    d. Judgement

    e. Endurance

    f. Enthusiasm

    g. Decisiveness

    h. Selflessness

    i. Tact

    j. Sense of humor

    k. Loyalty

    l. Creativity

2. Common leadership principles:

    a. Know your job

    b. Know yourself and seek self-improvement

    c. Set the example

    d. Care for your people

    e. Train your people to do the job as a team

    f. Seek responsibility and take responsibility for your actions

    g. Employ your command in accordance with its capability

    h. Ensure that each task is understood, supervised, and accomplished

This list is by no means complete, but it is a common list of the leadership traits and principles that can easily be translated to meet the needs of U.S. Air Force CE company

grade officers in developing individual leadership skills and abilities. Given this common list of leadership traits and principles, coupled with current leadership education and training programs and the leadership development model developed in this research, a U.S. Air Force CE company grade officer should be able to effectively accomplish the role of leading CE personnel in accomplishing CE's mission.

Research Question 3. Which leadership traits and principles do U.S. Air Force CE senior leaders perceive to be essential for CE company grade officers to possess and practice, and what do they feel to be the strongest leadership qualities (traits and principles) which have enabled them to reach the position they are currently in?

The leadership traits and principles U.S. Air Force CE senior leaders perceive to be essential in CE company grade officers parallel the common leadership traits and principles identified in Research Question 2. This holds true for the strongest leadership qualities (traits and principles) they feel have enabled them to reach the position they are currently in. The unique leadership traits and principles identified by these senior leaders are:

1. The "Nine Commandments" identified by Major General George E. Ellis, Director of Air Force Engineering and Services, of how to be a successful officer (these commandments are listed in Chapter III).

2. The "Chain of C's," a framework for thinking identified by Brigadier General Joseph A. Ahearn, Deputy

Director of Air Engineering and Services, (this "Chain of C's" is listed in Chapter III).

3. Self-confidence in not being afraid to fail (35).

4. Knowledge of business (35).

5. Acceptance of what comes in the way of assignments (18).

6. Being "100 percent on board" (i.e. totally dedicated) (18).

7. Getting the tough jobs (i.e. go out and seek them) (18).

8. Having the attitude to do anything asked of them (13).

9. Having a "sponge attitude" (initiative) (13).

The "Nine Commandments" of how to be a successful officer and the "Chain of C's," a framework for thinking, are the highlights in this area on which leadership traits and principles the Air Force CE senior leadership perceive to be essential for CE company grade officers to possess and practice. These lists can easily be translated into what Air Force CE company grade officers need to develop in the way of leadership skills and abilities in order for them to effectively accomplish CE's mission.

Research Question 4. Which concepts of the trait, behavioral, and contingency leadership theories can U.S. Air Force CE company grade officers use in accomplishing CE's mission?

The common definition of leadership identified in Research Question 1 and the leadership traits and principles desired in and practiced by effective leaders, identified in Research Questions 2 and 3, blend into different concepts of leadership

theories Air Force CE company grade officers, as leaders, can use to effectively accomplish CE's mission. In the leadership decision making process the leader will use a combination of the trait, behavioral, and contingency leadership theory concepts. These concepts include the individual leadership traits of the leader, the behavior of the leader and the group in accomplishing the mission, and the task which must be accomplished.

When Air Force CE company grade officers are confronted with making leadership decisions they will need to blend the concepts of the three leadership theories in order to effectively accomplish CE's mission. This is evident by the list of leadership traits and principles identified by Air Force CE senior leaders. These leadership traits and principles parallel the concepts of the trait and behavioral leadership theories in terms of which leadership traits and principles a leader should possess and practice in order to be effective in accomplishing CE's mission. This indicates that even though situational factors such as the leader as an individual, group organization and norms, and the situation at hand play a big role in the leadership decision making process. The need for individual leadership traits and how to behave in accomplishing individual leadership tasks is important in the overall accomplishment of CE's mission.

An example of how the concepts from all three leadership theories will be used by Air Force CE company grade officers is in the environment these officers will be faced with in

wartime. With a wartime scenario of rapid runway repair, force beddown, and war damage repair Air Force CE company grade officers never know beforehand exactly what the situation will be or how the personnel being lead will react. Therefore, the leadership decisions of each Air Force CE company grade officer have to be based on individual experience and ability, the personnel with the leader, reaction of the leader and the group to the situation, and the situation at hand.

Knowledge of these three leadership theory concepts is an important factor in the leadership development process of Air Force CE company grade officers. This knowledge is in terms of what the CE company grade officer must do and know as a leader in a wartime environment in order to accomplish CE's mission. In addition, this knowledge is used in the foundation for the leadership development model for U.S. Air Force CE company grade officers developed later in this chapter.

Research Question 5. What are the current leadership development education and training programs and opportunities available to U.S. Air Force CE company grade officers to develop the individual leadership skills and abilities necessary to accomplish CE's mission and are these programs and opportunities adequate in developing these skills and abilities?

The professional development of leadership skills and abilities of Air Force CE company grade officers is through

Squadron Officer School, the Lieutenants' Professional Development Program offered by the Leadership and Management Development Center, and the Air Force Institute of Technology School of Civil Engineering Professional Continuing Education short courses.

Squadron Officer School is the first of three PME schools in which first lieutenants and captains with less than seven years of active duty are eligible to attend. The leadership training and education provided by the Squadron Officer School is valuable as officers move through their careers. However, the most prominent problem with this portion of the leadership development cycle is that most officers do not attend Squadron Officer School until they have at least four years of commissioned service or they do not attend at all.

Squadron Officer School is needed before the company grade officer receives the tougher jobs and the increased responsibilities that come with increased rank. These tougher jobs and increased responsibilities usually come at approximately the four year point for Air Force CE company grade officers.

The training the officer receives from the Lieutenants' Professional Development Program is valuable in that it gives the lieutenant with less than two years of active duty the basic foundation for leadership development. The problem with this program is that it may not be offered to the lieutenant at all. The Leadership and Management Development Center is not currently manned to offer the course on a regular basis in

the field with the old traveling team method, in which they went from Maxwell AFB, Alabama, to a requesting base to train all the second lieutenants on that base, or as a resident program (36:73). The traveling team method was replaced in May 1986. With the current method a requesting base must send a cadre of personnel to Maxwell AFB to be trained by the Leadership and Management Development Center. The cadre then returns home to train the lieutenants at that base (11). This new method will provide the lieutenant with the initial foundation for leadership development provided the bases send the cadre to Maxwell AFB to be trained.

The leadership training and development offered by Squadron Officer School and the Leadership and Management Development Center is enhanced for Air Force CE company grade officers by attending short courses at the Air Force Institute of Technology School of Civil Engineering. A majority of the courses offered at the School of Civil Engineering are structured to educate Air Force CE officers on the technical and management aspects of operating a peacetime base. The only courses that provide class time to the area of leadership education and training for Air Force CE company grade officers are Contingency Engineering Course, ENG 485, and Introduction to Base Civil Engineering, MGT 001.

ENG 485 educates the Air Force CE company grade officer in employing expedient methods to accomplish CE's mission. In addition, ENG 485 educates the CE officer in the use of leadership principles listed in Chapter III to accomplish CE's

mission. This includes leadership principles such as:

1. Knowing your wartime job.

2. Setting the example.

3. Making sound and timely decisions.

MGT 001 provides the Air Force CE company grade officer with an overall view of Air Force CE to include the mission, organization, techniques, and operations. This course, like ENG 485, helps to begin the development of the initial leadership foundation needed by CE company grade officers.

These two courses offer the only formal education and training opportunity Air Force CE company grade officers may receive that prepares them for their wartime job. In addition, not all CE company grade officers are afforded the chance to attend either course. The reasons for this include:

1. Scheduling conflicts that do not allow the officer to attend.

2. A four year backlog to get into ENG 485.

3. The officer is not released from the initial duty assignment to attend MGT 001. This is important because after 12 months of service the officer is not eligible to attend MGT 001, except through special permission.

The biggest problem with leadership development for CE company grade officers comes in the area of on-the-job leadership development and opportunities. Home station Prime BEEF training once every 12 months and contingency training optimistically every 24 months at Eglin AFB, Florida, are not adequate opportunities to develop the leadership skills and

abilities needed by CE company grade officers in order for them to effectively accomplish CE's mission. In addition, there are not enough day-to-day type leadership development opportunities, such as heading a section or unit, Prime BEEF projects, Prime BEEF training, exercises, and additional duties, to adequately prepare the officer for the role of leading CE personnel.

Research Question 6. What methods do the U.S. Army, U.S. Marine Corps, U.S. Navy and corporate organizations, such as McDonnell Douglas, IBM, and General Motors, use to develop leadership skills and abilities in company grade engineering officers and young managers and can these methods be tailored to meet U.S. Air Force CE needs?

The most prominent difference, as shown by Table 4.2 and Table 4.3, between the leadership development of U.S. Air Force CE company grade officers and the U.S. Army, U.S. Marine Corps, and U.S. Navy is twofold.

1. Company grade engineering officers in the other three military services receive initial leadership and technical training through their respective engineering school immediately upon coming on active duty.

2. Company grade engineering officers in the other three military services are given the opportunity to lead a unit or section on the average four years earlier than U.S. Air Force CE counterparts.

In the case of corporate organizations, as shown by Table 4.2, the most prominent difference between the leadership

development of young managers in corporate organizations and U.S. Air Force CE company grade officers is that young managers in corporate organizations receive initial and yearly leadership and management training after being promoted to first line manager.

The way these methods are used by both the other three military services and corporate organizations to develop and enhance leadership skills and abilities in company grade engineering officers and young managers suggests that these methods can be tailored to meet U.S. Air Force CE needs. The method of initial training immediately after coming on active duty in the U.S. Army, U.S. Marine Corps, and U.S. Navy and immediately after being promoted to first line manager in corporate organizations is an excellent way to develop a sound leadership foundation. The initial assignments of company grade engineering officers in the other three military services further enhances the leadership training provided through the initial training schools. In addition, while these assignments give the company grade engineering officers more responsibility on the average four years earlier than U.S. Air Force CE counterparts, it prepares them on a daily basis for their wartime role in accomplishing the unit's mission.

The most prominent methods used by the U.S. Army, U.S. Marine Corps, and U.S. Navy to develop leadership skills and abilities in company grade engineering officers is through a series of training programs designed for the new officer and

initial assignments with more leadership responsibilities than Air Force CE counterparts. First, the U.S. Army, U.S. Marine Corps, and U.S. Navy send all engineering officers through a basic engineering school immediatley upon commissioning. The following is a brief summary of what each service offers and what is taught in the respective school:

1. U.S. Army Engineer Officer Basic Course: This is a 15 week course which is designed to provide the new lieutenant the necessary military skills and technical knowledge in order for them to effectively and confidently command an engineer platoon. The areas covered during this course are the basic mission and role of Army Corps of Engineers in the battlefield environment, leadership skills, field skills, technical engineering skills, and a field training exercise (82:n.p.).

2. U.S. Marine Corps: The Marine Corps sends company grade officers through two schools upon entering active duty.

   a. The Basic Officer Course: This is a 23 week school that is designed to provide the new lieutenant the basic knowledge and skills required of every Marine Corps officer. The subjects taught here range from leadership to map reading and land navigation (59:19-20;86:I-1).

   b. The Combat Engineer Officer Course: This is a ten week course taken by engineering officers upon graduation from the Basic Officer Course. This course is designed to train company grade engineering officers as Combat Engineers. The course's instruction is oriented toward battle-field mobility to general engineering (87:I-1).

3. U.S. Navy Civil Engineer Corps Office School Basic Qualification Course: This is an eight week course that is designed to teach the new officer the role of the Civil

Engineer Corps in the Navy, as well as prepare the officer for initial Navy Civil Engineer Corps duty assignments (67:7).

Second, and probably the most prominent method, is the initial assignment company grade officers receive in the U.S. Army, U.S. Marine Corps, and U.S. Navy. Typical first assignments for company grade engineering officers in the other three military services are as follows:

1. U.S. Army: Platoon leader, Combat Engineer Platoon, Company Executive Officer, or Assistant Battalion Staff Officer (26:n.p.).

2. U.S. Marine Corps: Platoon Leader, Combat Engineer Platoon, Engineer Company Executive Officer, or Marine Barracks Officer-in-Charge (59:38,44).

3. U.S. Navy: Platoon Leader, SEABEES, assignment in the Public Works Section at a large station, or Assistant Resident Officer in Charge of Construction in a medium office (69:A-4).

These types of assignments give the company grade engineering officers the opportunity to head a section or unit on the average four years earlier than Air Force CE counterparts.

The most prominent method used by corporate organizations to develop leadership skills and abilities in young managers is through a series of initial and yearly leadership and management training programs designed to develop and enhance the leadership foundation of young managers. These training programs provide the young manager the leadership and management skills needed to run a section in today's business

world by providing initial training and then building upon it each year. These leadership and management skills include:

1. People management
2. Motivation
3. Communication skills

However, only the concept of initial and yearly leadership and management training of young managers in corporate organizations, coupled with the people and mission oriented courses provided through these programs can be tailored to meet U.S. Air Force CE needs due to the following:

1. Corporate organizations have only a peacetime mission in which the development of leadership skills and abilities of young managers is based. Young managers learn what it takes to be a leader or manager in the business world, which to a large extend is equivalent to Air Force CE's peacetime environment. Set aside from the fact that the people and mission oriented courses would be useful to Air Force CE company grade officers in the leadership development cycle, the need for the development of the leadership skills and abilities needed in wartime is more prevalant in the overall development of the officer.

2. Corporate organizations and the U.S. Air Force have similar organizational structures in terms of when both CE company grade officers and young managers are given the opportunity to head a section within the organization. Which in both cases is usually at the four year point of a career.

By patterning current Air Force CE training and initial assignments of Air Force CE company grade officers after the methods used by the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations, Air Force CE should have the officers it needs to effectively accomplish the CE mission.

Research Question 7. From the leadership problems in the U.S. Air Force CE portion of Exercise SALTY DEMO, what can be done in CE's peacetime training environment to develop individual leadership skills and abilities needed by CE company grade officers to prevent the same problems from occurring again in future exercises or war?

One of the startling outcomes of Exercise SALTY DEMO was the distinct lack of leadership and management in the rapid runway repair phase of the exercise (9;66;74;81). According to both Colonel Darrell Bittle, USAF, Director Air Base Survivability, Systems Management Office at Eglin AFB, Florida, and Lt Col Paul McNickle, USAF, Chief Readiness Branch, HQ USAF/LEEXS, the Air Force CE leaders of the rapid runway repair portion of the exercise failed to recognize wartime problems such as work shifts, meal breaks, and rest breaks for personnel, and what to do once these problems were recognized (10;66). This can be translated into a failure of basic leadership traits and principles such as judgement, decisiveness, and caring for your people that should have been used by CE leaders in order to accomplish the mission.

Exercise SALTY DEMO brought out the fact that Air Force CE needs officers in the rapid runway repair portion of the

mission and that Air Force CE needs to change some of the current leadership development training methods for CE company grade officers in order for them to effectively accomplish CE's mission. Air Force CE needs officers to provide the leadership that is vital in seeing the "big picture" and to keep things going when nothing else seems to work.

The need for putting Air Force CE officers in the field portion of rapid runway repair to help resolve the problems mentioned earlier was recognized. The rapid runway repair training Air Force CE personnel receive at Field 4, Eglin AFB, Florida, and Ramstein AB, West Germany, has been changed. In past training environments the CE officer was left in the command post during the rapid runway repair exercise. It has been changed to include CE officers in both the field and command post portions of rapid runway repair exercises (66;74).

Some of the other things that Air Force CE can do and is doing in the peacetime training environment to help develop the leadership skills and abilities needed by CE company grade officers in order to prevent the same type of problems from occurring again in future exercise or war are (16):

1. Organize, operate, and train in the peacetime environment the way CE plans to fight in wartime.

2. Conduct training in an as realistic as possible threat environment.

3. Change current scaled down exercises to ones with a challenging real world threat scenario.

4. Develop both CONUS and theater training sites in which CE units, along with flying units, can exercise fully integrated air base survivability techniques.

In order to foster leadership skills and abilities in Air Force CE company grade officers to prevent the same problems encountered in Exercise SALTY DEMO from occurring again, CE needs to reorganize current ways of thinking and train CE personnel in peacetime the way they will fight in wartime. This fundamental statement is echoed in the first two of eleven principles of leadership taught by the U.S. Army in FM 22-100, Military Leadership, "Know yourself and seek self-improvement" and, "Be technically and tactically proficient" (30:42). Only through realistic and demanding training can individuals know themselves and seek improvements in weak areas, as well as enhance proficiency along the way.

Research Question 8. What type of leadership development model is required for U.S. Air Force CE company grade officers in order for them to effectively handle the role of leading CE personnel in accomplishing CE's mission?

The model that was formulated to serve as a guide to both Air Force CE company grade officers and senior leaders for fostering the leadership skills and abilities needed in CE company grade officers is described in the following section.

Leadership Development Model

U.S. Air Force CE company grade officers need more opportunities for leadership development to adequately prepare

them for the role of leading CE personnel in accomplishing CE's mission. This need may be addressed by a leadership development model. The model identified in this research focuses on what it takes to develop individual leadership skills and abilities in Air Force CE company grade officers.

This model should be used as a guide to both U.S. Air Force CE company grade officers and senior leaders in developing the required leadership skills and abilities needed in CE company grade officers. The use of this model, coupled with current leadership development education and training programs and the recommendations of this research, should ensure that Air Force CE has the leaders it needs to effectively accomplish the CE mission.

The leadership development model developed in this chapter, shown in Figure 6.1, is a four part model designed for the Air Force CE company grade officer.

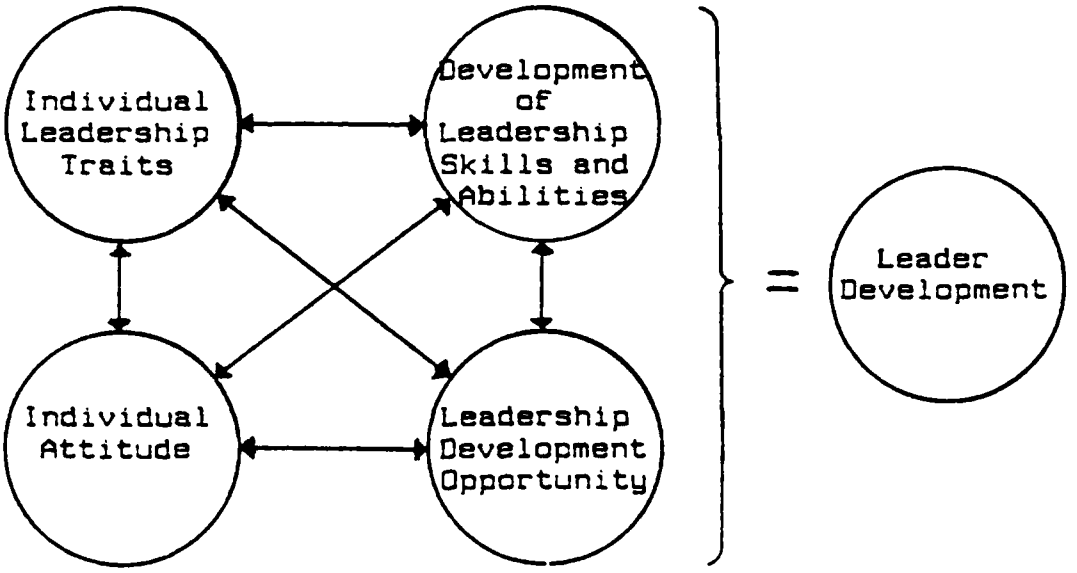

Figure 6.1. Leadership Development Model for U.S. Air Force Civil Engineering Company Grade Officers

All parts of this model interact with one another to develop necessary leadership skills and abilities needed by these officers to become effective leaders. Even though the four parts of this model have a separate function in the overall process of leadership development, all four parts must work together in order for the model to work. The separate functions of each part of this model are discussed below.

Individual Leadership Traits. Part I of this model represents the individual leadership traits and principles possessed and practiced by the individual. The importance of this part of the model cannot be overstated, because the individual leadership traits and principles that an individual possesses and practices are in a sense the leadership foundation of the individual. The development of individual leadership traits and principles is a continuous process that starts at the pre-commissioning phase of a career and continues until retirement. The level of development in this area depends on three factors: 1) how much the individual desires to be a leader and an officer, 2) the amount of leadership skills and abilities development the individual has had, and 3) the number of leadership development opportunities the individual has had.

Individual Attitude. Part II of this model represents the attitude of the Air Force CE company grade officer, for whom the model is designed. It is hoped by Air Force CE senior leaders that Air Force CE company grade officers have a positive, "go for it," attitude and are well motivated to want

to be a U.S. Air Force CE officer (2;18;35). Even though positive attitude and motivation are individual leadership traits that an individual may or may not possess, they are important factors in this phase of the overall leadership development process presented by this model. With a positive attitude and motivation Air Force CE company grade officers will want to do the best job possible and do whatever it takes to develop the individual leadership skills and abilities needed by them to effectively accomplish CE's mission. This is important in accomplishing CE's mission because, like the U.S. Army, U.S. Marine Corps, and U.S. Navy, company grade engineering officers are officers first and engineers second.

Development of Leadership Skills and Abilities. Part III of this model represents the professional and on-the-job leadership development of individuals. The professional leadership development for Air Force CE company grade officers includes the commissioning source, Professional Military Education (Squadron Officer School for company grade officers), the Lieutenants' Professional Development Program, and the Professional Continuing Education short courses offered at the Air Force Institute of Technology School of Civil Engineering. The missing link is the initial leadership development of CE company grade officers such as the initial training provided to company grade engineering officers in the U.S. Army, U.S. Marine Corps, and U.S. Navy. Air Force CE needs to develop an initial engineering training school for CE company grade officers upon entry into active duty, similar to

the schools used by the other three military services. This course, like the ones in the other three military services, would provide the new lieutenant with an overview of the CE mission and role in the Air Force, as well as provide for the development of the leadership foundation that will be used by the individual throughout a career.

The on-the-job leadership development includes the day-to-day supervision that is part of being a section or branch chief, Prime BEEF exercises, additional duties, Prime BEEF projects, and individual job responsibility. Part of this on-the-job leadership development includes giving Air Force CE company grade officers a leadership position earlier in their career. This leadership development method is the same type of the early leadership development used by the other three military services. As indicated earlier, the other three military services give most company grade engineering officers an initial assignment as a platoon leader or a section chief upon graduation from the respective basic course. This type of leadership development may require some readjustment of current Air Force CE thinking and policy.

A big step in trying to improve on-the-job leadership development comes from two initiatives that are being developed in the Air Force CE community. The first initiative is the increase of base level Prime BEEF training from the current 5 to 15 percent of CE productive work hours to 25 percent of total CE productive work hours as recommended by Major General George E. Ellis, Director of Air Force

Engineering and Services (34). The amount of increase depends on the base and command and how much productive time they are currently spending on Prime BEEF training. The increase in training hours provides the CE company grade officer additional opportunities to develop individual leadership skills and abilities, as long as it is an increase in realistic training and not just an increase in hours.

The second initiative is the development of a Systems Engineer position in the CE Operations Branch (43). This position will be filled by young lieutenants and will give them job responsibility earlier in a career, while giving them the opportunity to develop and enhance individual leadership skills and abilities.

Leadership Development Opportunity. Part IV of this model is probably the most important part of the model next to the attitude of the individual. The individual must be given the opportunity to develop individual leadership skills and abilities. This includes the development opportunities provided by the unit (CE senior leaders) and the opportunities sought after by the individual. Giving young officers these development opportunities means giving them a chance to fully utilize, refine, and enhance the leadership skills and abilities they have developed.

Leadership development opportunities that Air Force CE senior leaders can give CE company grade officers are:

1. The planning and accomplishment of Prime BEEF projects from conception to completion. Examples of Prime

BEEF projects range from special interest projects to small work orders. The officer, given the requirements of the project, will plan the job in terms of materials, manpower, and work schedule, and then lead the selected team in completing the project.

2. Putting these officers in charge of special projects and teams. For example, at Edwards AFB, California (AFSC), CE company grade officers are put in charge of a Structural Maintenance and Repair Team for a set period of time and then rotated to another position in the unit (75). Another example is found in TAC where CE company grade officers lead Prime BEEF teams in support of Air Force exercises like Silver Flag and Red Flag (42).

3. Giving these officers the opportunity for increased responsibility earlier than the four year point. In AU, for example, CE company grade officers are rotated through different jobs in CE (13). Another opportunity for increased responsibility will come through the new position of Systems Engineer being developed through Project IMAGE (Innovative Management Achieves Greater Effectiveness) for the Operations Branch (43). Other examples in this area include placing the young officer in charge of the Readiness Section, making the officer the Officer-in-Charge of a Prime BEEF deployment, or giving the officer large projects to design or inspect from start to finish.

4. Conducting more Prime BEEF exercises and training. For example, in AFLC CE company grade officers are involved in

up to 30 percent more Prime BEEF training than the Air Force average (18). Prime BEEF exercises and training can be increased through additional field training exercises and the deployment of Prime BEEF teams to base recreational areas for periods of one week.

5. Giving the officers more responsibility in terms of the requirements for the peacetime job. This means giving the CE company grade officer more responsibility than just drawing the design or inspecting a small contract. The officer should be involved from beginning to completion in all aspects of the project. Make the officer responsible, teach the officer not to be afraid to fail, and let the officer learn from mistakes.

6. Rotating the officer through the different positions in the CE unit. Develop a plan where the young CE company grade officer is rotated through the various positions in CE. This will help to develop the knowledge of the officer in terms of how CE operates as a whole, while giving the officer some responsibility in the different areas of CE.

7. Giving the officer the opportunity to attend the professional leadership development schools. Granted, to send the officer to school cuts unit manpower for a time, but the benefits gained by the unit when the individual returns outweighs this small manpower shortage. As a senior CE leader, do whatever is necessary to send CE company grade officers to Squadron Officer School, the Lieutenants' Professional Development Program, and ENG 485 and MGT 001

offered at the Air Force Institute of Technology School of Civil Engineering.

Leadership development opportunities that Air Force CE company grade officers can make for themselves are:

1. Becoming and staying actively involved with Prime BEEF in the way of exercises, training, and special projects. Do not look at Prime BEEF as a burden in that it is a square that must be filled every six months or so. Go out there with "gusto" and learn everything there is to know about Prime BEEF and the role it plays in the CE mission. After all, Prime BEEF is the bread and butter of Air Force CE in wartime.

2. Volunteering for additional duties. Every opportunity to develop and enhance individual leadership skills and abilities toward meeting the goal of effectively leading CE personnel in accomplishing CE's mission is important. Volunteering for additional duties ranging from Disaster Preparedness to Saving Bond Drive monitor gives the officer increased responsibility and an opportunity to build on individual leadership foundations.

3. Taking advantage of all opportunties as they arise, no matter how small they may seem. If the opportunity arises to lead a Prime BEEF team or even to plan a unit picnic, do it. Every opportunity to develop leadership skills and abilities will help in the long run in accomplishing CE's mission.

4. Going after the tough, challenging jobs. As an Air Force CE officer do not be satisfied with working a nine to

five job. Go after the big projects to be designed and inspected. Go after working as the section chief in areas such as readiness, contract management, design, and resources.

5. Getting involved with community and base affairs. Getting involved with extra off base duties, such as coaching athletic teams, gives the individual additional opportunities to develop and enhance individual leadership skills and abilities.

6. Getting as much responsibility as you can and then taking advantage of it to gain as much experience and knowledge as possible. Do not sit idle, volunteer for the large design projects, the additional duties, Prime BEEF exercises and training, and Prime BEEF deployments. These type of opportunities will help to develop and enhance individual leadership skills and abilities, and as mentioned earlier, will build on the leadership foundation needed by the officer to effectively accomplish CE's mission.

7. Volunteering to attend the professional leadership development schools. Do not apply once and then forget about it, stay with it until attendance. The courses offered by the Squadron Officer School, the Lieutenants' Professional Development Program, and ENG 485 and MGT 001 offered at the Air Force Institute of Technology School of Civil Engineering help to develop the individual leadership foundation that will be utilitized and built upon throughout the career.

Model Analysis. As mentioned earlier, it takes all four parts working together for this model to be successful because

the leadership development does not occur unless the whole process has been completed. The use of this leadership development model cannot begin after one, two or three years of active duty, it must begin during the pre-commissioning phase of development and continue throughout the career of the individual. For the model to be successful it must be actively pursued by both the Air Force CE company grade officer and CE senior leadership from day one of the individual's career.

This model can be looked upon as a positive/negative type system. If all parts are functioning properly the model produces the leader needed to accomplish CE's mission, thus a positive end results. If one part of the model is not working or is incomplete, the end result will be an individual who does not possess the maximum attainable individual leadership skills and abilities required to effectively accomplish CE's mission. Hence, a negative end results. If this happens the problem can be analyzed to determine which part or parts are not functioning properly, then the necessary steps can be taken to correct the deficiency. Examples of this negative end result and what can be done to correct it are as follows:

1. The individual is not motivated enough or does not seem to have the attitude to do what is required of them in the area of leadership development. This creates a problem in Part II, which has a negative impact on the rest of the model. Therefore, a negative end results in terms of proper leadership development. At this point individual counselling

can be done to determine what is causing the problem. It may be found that the problem is job dissatisfaction, problems at home, or problems with the individual. In any case, it takes both the individual and CE senior leaders working together to solve the problem.

2. The individual is given the opportunity to further enhance leadership development, but has not been given the proper leadership skills and abilities development through either professional or on-the-job type leadership development. This affects the overall leadership development process and the attitude of the individual by possibly creating a negative motivational factor in the individual. This causes problems in both Parts II and III, which has a negative impact on the remainder of the model. As with number one, this causes a negative end result in terms of leadership development. The solution to this problem is as follows:

a. Send the individual to a professional leadership development program.

b. Increase the on-the-job leadership development of the officer, including more Prime BEEF training, Prime BEEF projects, or increased responsibility.

3. The individual has developed the required leadership skills and abilities through professional and on-the-job leadership skills and abilities development, but has not been given the opportunity to further enhance them. This affects the overall leadership development process and the attitude of the individual by possibly creating a negative motivational factor in the individual. This causes problems in both Part

II and IV, which has a negative impact on the rest of the model. This causes a negative end result in terms of leadership development. The problem can be solved by increasing the leadership development opportunities available to the officer such as increased Prime BEEF training, additional duties, and increased responsibility.

The success or failure of this leadership development model seems to be based on the motivation of the individual after a positive/negative situation takes place in one of the four parts of the model. However, with all four parts closely tied together and working properly and the individual wanting to be the best leader they can be, the end result will be the CE leader that is needed to effectively accomplish CE's mission.

For this leadership development model to be a success there must be active involvement by both CE company grade officers and CE senior leaders. Air Force CE senior leaders must make and give the opportunities to CE company grade officers and CE company grade officers must go out and seek the opportunities which will help to develop the required leadership skills and abilities they need.

Summary

This chapter has provided an analysis of the eight research questions which were used to develop the basic foundation for the leadership development model developed in this chapter. This leadership development model for Air Force

CE company grade officers was developed to serve as a guide to both Air Force CE company grade officers and senior leaders for fostering the leadership skills and abilities required in CE officers in order for them to effectively accomplish the role of leading CE personnel. The use of this model, coupled with current leadership education and training programs and the recommendations of this research, should ensure that CE has the leaders it needs to effectively accomplish its mission.

VII. Conclusions and Recommendations

Chapter Overview

This chapter contains the conclusions drawn from this research for the development of a leadership development model for U.S. Air Force CE company grade officers. Recommendations are provided for consideration by Director of Air Force Engineering and Services, Headquarters Air Force Engineering and Services Center, the Air Force Institute of Technology School of Civil Engineering, and each Air Force CE officer for improving the leadership development of U.S. Air Force CE company grade officers.

Conclusions

This research first examined the definition of leadership, individual leadership traits desired in leaders, leadership principles practiced by leaders, and the concepts of the trait, behavioral, and contingency leadership theories. Second, this research examined the leadership traits and principles U.S. Air Force CE senior leaders perceive to be essential for CE company grade officers to possess and practice, and what they feel to be the strongest leadership qualities (traits and principles) which have enabled them to reach the position they are currently in. Third, this research examined leadership development programs and opportunities available to Air Force CE company grade officers. Fourth, this research examined the methods used by

the U.S. Army, U.S. Marine Corps, U.S. Navy, and corporate organizations, such as McDonnell Douglas, IBM, and General Motors, to develop leadership skills and abilities in company grade engineering officers and young managers, and whether these methods can be tailored to meet Air Force CE needs. Finally, this research examined the leadership problems that slowed the accomplishment of exercise objectives in the Air Force CE portion of Exercise SALTY DEMO to see whether these problems can be prevented in future exercises or war.

The information obtained from a review of the literature and personal interviews was used to develop a leadership development model for Air Force CE company grade officers. This leadership development model was designed to serve as a guide to both Air Force CE company grade officers and senior leaders for fostering the leadership skills and abilities needed in CE company grade officers to effectively handle the role of leading CE personnel in accomplishing CE's mission.

The conclusions from this research are summarized below:

1. There are both perceived and observed leadership deficiencies among Air Force CE company grade officers in the areas of leadership development opportunities and leadership skills and abilities that need to be addressed and resolved now.

2. There is no common definition of leadership among the military services and civilian world. Each person has their own definition of what leadership is and how to apply it to meet the mission. However, by looking at the common threads

between the definitions that were examined, the people and the mission, a common definition of military leadership was obtained.

3. The leadership traits and principles identified by other military services and the corporate world as what officers and managers should possess and practice have virtually remained unchanged over the test of time. It can be concluded that even though people, missions, and times have changed, what is required to be an effective leader has not.

4. There are certain leadership traits and principles U.S. Air Force CE senior leaders feel CE company grade officers need to possess and practice. In order for these leadership traits to be developed and the leadership principles practiced, these officers must be given the proper leadership development education and training and most importantly the opportunity to develop these desired skills.

5. In a contingency environment where combat situations change moment to moment, the Air Force CE company grade officer will need to blend the concepts of the trait, behavioral, and contingency leadership theories in order to effectively accomplish CE's mission. Knowledge of these three leadership theory concepts is an important factor in the leadership development process of Air Force CE company grade officers. This knowledge is in terms of what the CE company grade officer must do and know as a leader in a wartime environment in order to accomplish CE's mission. In summary, the leadership decisions made by Air Force CE company grade

officers will be based on individual experience and ability, reaction of the leader and the group to the situation, and the situation at hand.

6. The professional leadership development of Air Force CE company grade officers is offered through Squadron Officer School, The Leadership and Management Development Center, and the Air Force Institute of Technology School of Civil Engineering. The leadership training and education provided by these programs is a valuable foundation on which to build as officers move through a career. However, each program has problems that effect the leadership development of Air Force CE company grade officers.

a. Squadron Officer School: Most officers do not attend Squadron Officer School until they have at least four years of commissioned service or they do not attend at all.

b. Lieutenants' Professional Development Program: All second lieutenants do not receive the opportunity to attend this course. This is especially prevalent with the new method of offering the program in which the Leadership and Management Development Center trains a cadre of personnel from a requesting base, at Maxwell AFB, Alabama, in the course content and how to properly teach the course when they return home. This new method will only be successful if the bases send a cadre to Maxwell AFB for training.

c. Air Force Institute of Technology School of Civil Engineering: The School of Civil Engineering only offers two courses that provide leadership education, ENG 485, Contingency Engineeering, and MGT 001, Introduction to Base Civil Engineering. The problem with these courses is not with the leadership education that is provided, but the fact that all Air Force CE company grade officers are not given the opportunity to attend these courses.

7. The biggest problem with leadership development of Air Force CE company grade officers is in the area of on-the-job leadership development and opportunities. Home station prime BEEF training once every 12 months and contingency training optimistically every 24 months at Eglin AFB, Florida, are not adequate opportunities in which to develop the leadership skills and abilities needed by CE company grade officers in order for them to effectively accomplish CE's mission. In addition, there are not enough on-the-job, everyday leadership development opportunities such as heading a section or unit, Prime BEEF projects, Prime BEEF training, exercises, and additional duties, to adequately prepare Air Force CE company grade officers for the role of leading CE personnel.

8. The most prominent method used by corporate organizations to develop leadership skills and abilities in young managers that can be tailored to meet U.S. Air Force CE needs is the initial and yearly leadership and management training programs for young managers. These programs are an excellent way to develop a sound leadership foundation by providing initial training and then building upon it each year.

However, only the concept of initial and yearly leadership and management training of young managers in corporate organizations, coupled with the people and mission oriented courses provided through these programs can be tailored to meet U.S. Air Force needs due to the following:

a. The similarity between the organizational structures of corporate organizations and the U.S. Air Force in terms of when CE company grade officers and young managers are given the opportunity to lead a section within the organization.

b. The fact that corporate organizations only have a peacetime mission on which to base the development of leadership skills and abilities of young managers.

9. Two of the prominent methods used by the U.S. Army, U.S. Marine Corps, and U.S. Navy to develop leadership skills and abilities in company grade engineering officers can be tailored to meet U.S. Air Force needs in accomplishing CE's mission. These methods are described below:

a. The method of sending company grade engineering officers to a basic school to teach the officer the engineering mission and role of that respective service and to provide the basic foundation for the leadership skills and abilities the officer will need throughout a career.

b. The initial assignment these officers receive after graduation from this basic school. A majority of these officers receive assignments as either a platoon leader or the officer in charge of a section or branch.

These two methods are the beginning of the leadership development of company grade engineering officers, which are on the average four years earlier than U.S. Air Force CE counterparts.

10. Exercise SALTY DEMO brought out the fact that the CE leadership during the rapid runway repair phase of the exercise failed to recognize fundamental wartime problems and what should be done once these problems are recognized. In an effort to keep these problems from occurring again in future

exercises or war, Air Force CE has changed and is looking into changing some of its peacetime training methods. These changes include: more officer participation in rapid runway repair training, more challenging real world threat training scenarios, organizing, operating, and training in peacetime the way CE plans to fight in wartime, and the development of training sites in which CE units, along with flying units, can exercise fully integrated air base survivability techniques as a unit (16). These changes coupled with current leadership development programs and the leadership development model developed in Chapter VI should ensure that Air Force CE company grade officers will be able to develop the leadership skills and abilities needed for them to effectively lead CE personnel in accomplishing CE's mission.

11. Something needs to be done in the area of leadership development for Air Force CE company grade officers. This need can be met by the leadership development model for Air Force CE company grade officers developed in Chapter VI. The use of this model, coupled with current leadership development education and training programs and the recommendations of this research, should ensure that Air Force CE has the leaders it needs to efectively accomplish the CE mission.

Recommendations

The recommendations listed below are not listed in priority order and are offered for consideration by the Director of Air Force Engineering and Services, Headquarters

Air Force Engineering and Services Center, Air Force Institute of Technology School of Civil Engineering, and each Air Force CE officer for improving the leadership development education and training programs and leadership development opportunities of Air Force CE company grade officers.

1. Air Force CE should develop an initial training course for CE company grade officers similar to the ones used by the U.S. Army, U.S. Marine Corps, and U.S. Navy. This course could be conducted at the Air Force Institute of Technology School of Civil Engineering and include a combination of the following courses:

a. MGT 001, Introduction to Base Civil Engineering, (two weeks).

b. Eng 485, Contingency Engineering, (three weeks).

c. The Lieutenents' Professional Development Program (one week). This will require a cadre from the School of Civil Engineering to be trained in this area.

d. A one week class at Field 4, Eglin AFB, Florida, that includes:

(1) An indoctrination to all CE Air Force Specialty Codes that covers the purpose and role of each one in respect to CE's mission and in order to receive hands on experience in each area.

(2) Force beddown, air base survivability and base recovery training.

2. Air Force CE should make the initial duty assignment of Air Force CE company grade officers one which will help to develop and enhance the leadership skills and abilities needed by these officers to accomplish CE's mission. This may require some reorganization of CE in order to make more

positions available for new officers and rethinking of current Air Force CE policy and practice in terms of what role CE officers have in CE towards the wartime engineering role.

3. Air Force CE should make the Air Force Institute of Technology School of Civil Engineering Contingency Engineering Course, ENG 485, mandatory for all Air Force CE officers. In addition, this course should be extended to three weeks in order to cover what is necessary to develop the leadership skills and abilities needed in Air Force CE company grade to effectively accomplish the CE mission.

4. When increasing the Prime BEEF training hours from the current 5 to 15 percent of total productive hours to 25 percent Air Force CE should ensure that the increase is not just an increase in training hours, but that the increase expands the realistic real world threat training. Air Force CE needs to train in peacetime the way it plans to fight in wartime. This expansion in realistic training hours can be accomplished by the following methods:

a. Develop realistic real world base level scenarios that involve the whole base in air base survivability techniques.

b. Change the current scaled down exercises to exercises with a challenging real world threat scenario. (Identified from Exercise SALTY DEMO).

c. Increase Air Force CE involvement in Air Force flag type exercises (i.e. Red Flag).

d. Increase frequency of home station field training exercises from annual to at least one every six months.

This list is by no means complete and could go on forever. What is important to realize is the fact that Air Force CE has a wartime mission that must be prepared for in peacetime. Not only must the Air Force CE community realize this, but the operational Air Force as a whole must also recognize this need to be prepared to go to war. Air Force CE needs to take whatever steps are necessary to ensure that it is prepared to go to war and that it has the properly trained and developed officers to lead CE personnel in accomplishing CE's mission.

5. There should be thesis research conducted in the area of increased Prime BEEF training, identified in recommendation number four, to determine:

a. What impact this increased training will have on CE organizations?

b. What type of training needs to be included in this increase to better prepare Air Force CE company grade officers to accomplish CE's mission?

c. What are the options available to Air Force CE to make-up the lost work hours due to increased training?

6. Air Force CE should have each CE unit develop a Prime BEEF project program in which Air Force CE company grade officers are given the responsibility of a project from conception to completion. These projects could range anywhere from small work orders to special interest projects. Given the requirements of the project the officer would plan the job in terms of materials, manpower, and work schedule, then lead the selected team in completing the project.

7. Air Force CE should have each command develop a deployment program during readiness inspections in which a Prime BEEF team from the base that is being inspected is deployed to another base for five days.

8. The Air Force CE community and operational Air Force as a whole needs to change its attitude about the CE peacetime mission being first priority and realize that CE has a wartime mission. If the necessary steps are not taken now to prepare CE leaders for their wartime role, CE's mission will suffer. One of the primary methods that can be used to accomplish this change is public relations. Public relation methods to include:

a. Articles in base newspapers.

b. Briefings at commanders calls.

c. Segments in Air Force NOW films.

d. Briefings at commanders courses throughout the Air Force

9. Air Force CE needs to organize, operate, and train in peacetime the way it plans to fight in wartime. As with recommendation number two, this may require some reorganization and rethinking of current Air Force CE policy and practice, but to get the officers needed to accomplish CE's mission it is well worth the effort. One of the key issues currently being addressed is the reorganization of Prime BEEF teams in order for them to be deployed with flying units from the same base during wartime and training exercises (34). This is a major step in making the Air Force realize

that Air Force CE has a wartime mission in which it must prepare for on a continuous basis.

10. This research barely touched the tip of the iceberg by developing the leadership development model for Air Force CE company grade officers. There needs to be follow-on research in this area to cover topics such as:

a. Will the leadership development model for Air Force CE company grade officers developed in this research meet the leadership development needs of Air Force CE?

b. What leadership development opportunities are Air Force CE senior leaders at base level giving CE company grade officers to develop the required leadership skills and abilities needed in order for them to effectively accomplish the role of leading CE personnel in accomplishing CE's mission.

c. How can the current Air Force CE organization be changed to accomplish proper leadership development of company grade officers similar to that of the other three military services.

d. Can the leadership development model for Air Force CE company grade officers, developed in Chapter VI, be applied to Air Force CE noncommissioned officers.

e. The research and leadership development model should be validated by sending it out to both company grade and senior officers in the 55XX career field. The results will compare what was developed to what the CE field says it needs in terms of leadership development.

11. Even though this research was limited to Air Force CE company grade officers future research needs to be accomplished to include the leadership development of noncommissioned officers and what it takes for them to be effective leaders.

12. This effort of a leadership development model for Air CE company grade officers must not die and collect dust on a shelf. Instead this model, along with the recommendations of this research plus current leadership development education and training programs, must be used to develop the leaders that CE needs to effectively accomplish its mission.

Appendix A: Letters Sent To Organizations Requesting Information

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (AU)
WRIGHT-PATTERSON AIR FORCE BASE, OH 45433-6583

3 MAR 1990

REPLY TO ATTN OF: LSG (AU 785-5435)

SUBJECT: Request For Information On Engineering Officer Career Progression and Development

TO: Commander Military Personnel Center
Attn: DAPC/OPF-E
200 Stovall St
Alexandria, VA 22332-0400

1. I am currently a student in the Graduate Engineering Management Program at the Air Force Institute of Technology (AFIT) School of Systems and Logistics. As part of my graduation requirements I am engaged in a thesis research project comparing the leadership training and development programs for young engineering officers and executives in the United States Air Force, Army, Navy, Marine Corps, and corporate organizations.

2. I am requesting any information that you can provide me on how the Army develops its company grade engineering officers into the leaders that are required to meet their engineering mission. In particular, I am looking for information on engineering officer career development and progression, leadership development training, and opportunities given to the company grade officer to enhance and develop their leadership skills and abilities.

3. Any information you can give me will be greatly appreciated and will greatly enhance my final thesis product.

Paul W. Somers
PAUL W. SOMERS, Capt, USAF
Student, AFIT GEM Program

Approved For Release

Alan E. M. Tucker
ALAN E. M. TUCKER, Lt Col, USAF
Graduate Program Administrator
School of Systems and Logistics

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OH 45433-6583

REPLY TO ATTN OF LSG (AU 785-5435) 3 MAR 1988

SUBJECT Request For Information On Engineering Officer Career Progression and Development

TO Director Command, Control, Communication,
and Computer Systems Division
HQ US Marine Corps
Washington, D.C. 20380-0001

1. I am currently a student in the Graduate Engineering Management Program at the Air Force Institute of Technology (AFIT) School of Systems and Logistics. As part of my graduation requirements I am engaged in a thesis research project comparing the leadership training and development programs for young engineering officers and executives in the United States Air Force, Army, Navy, Marine Corps, and corporate organizations.

2. I am requesting any information that you can provide me on how the Marine Corps develops its company grade engineering officers into the leaders that are required to meet their engineering mission. In particular, I am looking for information on engineering officer career development and progression, leadership development training, and opportunities given to the company grade officer to enhance and develop their leadership skills and abilities.

3. Any information you can give me will be greatly appreciated and will greatly enhance my final thesis product.

Paul W. Somers
PAUL W. SOMERS, Capt, USAF
Student, AFIT GEM Program

Approved For Release

Alan E. M. Tucker
ALAN E. M. TUCKER, Lt Col, USAF
Graduate Program Administrator
School of Systems and Logistics

DEPARTMENT OF THE AIR FORCE
AIR FORCE INSTITUTE OF TECHNOLOGY (AU)
WRIGHT-PATTERSON AIR FORCE BASE, OH 45433-6583

3 MAR 1988

REPLY TO ATTN OF: LSG (AV 785-5435)

SUBJECT: Request For Information On Engineering Officer Career Progression and Development

TO: Department of the Navy
Naval Military Personnel Command
NMPC-4413
Washington, D.C.

1. I am currently a student in the Graduate Engineering Management Program at the Air Force Institute of Technology (AFIT) School of Systems and Logistics. As part of my graduation requirements I am engaged in a thesis research project comparing the leadership training and development programs for young engineering officers and executives in the United States Air Force, Army, Navy, Marine Corps, and corporate organizations.

2. I am requesting any information that you can provide me on how the Navy develops its company grade engineering officers into the leaders that are required to meet their engineering mission. In particular, I am looking for information on engineering officer career development and progression, leadership development training, and opportunities given to the company grade officer to enhance and develop their leadership skills and abilities.

3. Any information you can give me will be greatly appreciated and will greatly enhance my final thesis product.

Paul W. Somers

PAUL W. SOMERS, Capt, USAF
Student, AFIT GEM Program

Approved For Release

Alan E. M. Tucker

ALAN E. M. TUCKER, Lt Col, USAF
Graduate Program Administrator
School of Systems and Logistics

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OH 45433-6583

5 MAR 1988

REPLY TO ATTN OF LSG (AV 785-5435 or (513)-255-5435)

SUBJECT Request For Information On Your Organization's Training Programs For Young Executives

TO Mr. Lee Metcalf
McDonnell Douglas Corporation
Department 70, Bldg 273
PO Box 516
St. Louis, MO 63166

1. I am currently a student in the Graduate Engineering Management Program at the Air Force Institute of Technology (AFIT) School of Systems and Logistics. As part of my graduation requirements I am engaged in a thesis research project comparing the leadership training and development programs for young engineering officers and executives in the United States Air Force, Army, Navy, Marine Corps, and corporate organizations.

2. I am requesting any information that you can provide me on how your organization develops its executives into the leaders/managers that are required in today's business world. In particular, I am looking for information on executive career planning and development, leadership/management development training, and opportunities given to the young executive to enhance and develop their leadership/management skills and abilities.

3. Any information you can provide me will be greatly appreciated and will greatly enhance my final thesis product.

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Alan E. M. Tucker
ALAN E. M. TUCKER, Lt Col, USAF
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School of Systems and Logistics

STRENGTH THROUGH KNOWLEDGE

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OH 45433-6583

5 MAR 1986

REPLY TO ATTN OF LSG (AV 785-5435 or (513)-255-5435)

SUBJECT Request For Information On Your Organization's Training Programs For Young Executives

TO IBM Corporation
1701 North St
Endicott, NY 13760
Attn: Professional Personnel Department

1. I am currently a student in the Graduate Engineering Management Program at the Air Force Institute of Technology (AFIT) School of Systems and Logistics. As part of my graduation requirements I am engaged in a thesis research project comparing the leadership training and development programs for young engineering officers and executives in the United States Air Force, Army, Navy, Marine Corps, and corporate organizations.

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School of Systems and Logistics

DEPARTMENT OF THE AIR FORCE
AIR UNIVERSITY
AIR FORCE INSTITUTE OF TECHNOLOGY
WRIGHT-PATTERSON AIR FORCE BASE OH 45433-6583

3 MAR 1988

REPLY TO ATTN OF LSG (AV 785-5435 or (513)-255-5435)

SUBJECT Request For Information On Your Organization's Training Programs For Young Executives

TO Education and Training Department
General Motors Corporation
1700 West 3rd Ave
Flint, MI 48502

1. I am currently a student in the Graduate Engineering Management Program at the Air Force Institute of Technology (AFIT) School of Systems and Logistics. As part of my graduation requirements I am engaged in a thesis research project comparing the leadership training and development programs for young engineering officers and executives in the United States Air Force, Army, Navy, Marine Corps, and corporate organizations.

2. I am requesting any information that you can provide me on how your organization develops its executives into the leaders/managers that are required in today's business world. In particular, I am looking for information on executive career planning and development, leadership/management development training, and opportunities given to the young executive to enhance and develop their leadership/management skills and abilities.

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Student, AFIT GEM Program

Approved For Release

Alan E. M. Tucker
ALAN E. M. TUCKER, Lt Col, USAF
Graduate Program Administrator
School of Systems and Logistics

STRENGTH THROUGH KNOWLEDGE

Appendix B: Interview Questions For U.S. Air Force Civil Engineering Senior Leaders and List of Participants

Interview Questions

An approximate 15 minute interview was conducted with U.S. Air Force CE senior leaders to obtain the "view from the top" on leadership development deficiencies with Air Force CE company grade officers and possible solutions to these deficiencies (Table B.1 lists the interview participants). Included in these views are: the leadership traits and principles CE senior leaders perceive to be essential for CE company grade officers to possess and practice, and what both CE company grade officers and senior leaders can do to foster the leadership skills and abilities needed in CE company grade officers. During the interview the following questions were asked:

1. In reference to your past experiences and the recent completion of Exercise Salty Demo do you see a problem with leadership and leadership development in CE company grade officers? (All)

2. What do you look for in the way of leadership skills and abilities in CE company grade officers? (All)

3. Since most CE officers start their career in a non-supervisory position, what does your command do and what

can the CE senior leadership do to help develop the leadership skills and abilities required in CE company grade officers so that they can effectively handle the role of leading CE personnel in accomplishing CE's wartime mission? (All)

4. What do you feel are the leadership qualities which have enabled you to reach your present position? (All)

5. What are the differences in the leadership development opportunities for CE company grade officers in CONUS assignments versus overseas assignments and which one provides the best leadership development opportunities? (M/G Ellis only)

6. Which command has the best leadership development program for CE company grade officers and why? (M/G Ellis only)

7. From your position, in what ways can CE improve the leadership development opportunities for its company grade officers? (M/G Ellis only)

Table B.1
List of Interview Participants

Name	Position At Time Of Interview	Date
B/G Roy M. Goodwin	DCS/Engr & Svcs HQ TAC	9 Jan 86
B/G John R. Harty	DCS/Engr & Svcs HQ MAC	23 Jan 86
Col William R. Sims	DCS/Engr & Svcs HQ AFSC	20 Feb 86
B/G Joseph A. Ahearn	DCS/Engr & Svcs HQ USAFE	3 Mar 86
B/G David M. Cornell	DCS/Engr & Svcs HQ AFLC	7 Mar 86
Col David M. Brooks	DCS/Engr & Svcs HQ AU	24 Mar 86
M/G George E. Ellis	Dir of Engr & Svcs HQ USAF	10 Apr 86
Col James W. Rosa	Dep DCS/Engr & Svcs HQ PACAF	11 Apr 86

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VITA

Captain Paul W. Somers was born on [redacted] in [redacted], son of Mr. and Mrs. Paul A. Somers. He graduated from Council McCluer High School, Jackson, Mississippi, in 1973 and attended Mississippi State University from which he received the degree of Bachelor of Science in Civil Engineering in August 1978. Upon graduation, he was commissioned a second lieutenant in the U.S. Air Force through the ROTC Program at Mississippi State University. He entered active duty in November 1978 when he was assigned to the 3800th Civil Engineering Squadron at Maxwell AFB, Alabama. While at Maxwell, Captain Somers served as a Construction Inspector and the Chief of Readiness and Logistics. In October 1981 he was reassigned to HQ Air Training Command, Randolph AFB, Texas, as the Assistant Chief of Force Development. In April 1984 he was reassigned to Shemya AFB, Alaska as the Chief of Operations of the 5073rd Civil Engineering Unit. He served in this position until he entered the Graduate Engineering Management Program, School of Systems and Logistics in May 1985.

Permanent Address: [redacted]

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19. ABSTRACT (Continue on reverse if necessary and identify by block number)

TITLE: A LEADERSHIP DEVELOPMENT MODEL FOR UNITED STATES AIR FORCE CIVIL ENGINEERING COMPANY GRADE OFFICERS

THESIS CHAIRMAN: Neil K. Kanno, Captain, USAF
Course Director, Contingency Engineering
School of Civil Engineering

Approved for public release IAW AFR 190-1.
LYNN E. WOLAVER 24 Sept 86
Dean for Research and Professional Development
Air Force Institute of Technology (AU)
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The officers of today, who will be our leaders of tomorrow, need to have the necessary leadership skills, abilities, and development to lead personnel in combat. This is to say that United States (U.S.) Air Force Civil Engineering (CE) must have leadership from its officers, particularly company grade officers, who in most cases are inexperienced in the ability to lead effectively. Thesis

This research first examined the definition of leadership, individual leadership traits desired in leaders, leadership principles practiced by leaders, and the concepts of the trait, behavioral, and contingency leadership theories. Second, this research examined the leadership traits and principles U.S. Air Force CE senior leaders perceive to be essential for CE company grade officers to possess and practice, and what they feel to be the strongest leadership qualities (traits and principles) which have enabled them to reach the position they are currently in. Third, this research examined leadership dvelopment programs and opportunities available to U.S. Air Force CE company grade officers. Fourth, this research examined the methods used by the U.S. ARmy, U.S. Marine Corps, U.S. Navy, and corporate organizations, such as McDonnell Douglas, IBM, and General Motors, to develop leadership skills and abilities in company grade engineering officers and young managers, and whether these methods can be tailored to meet U.S. Air Force CE needs. Finally, this research examined the leadership problems that slowed the accomplishment of exercise objectives in the Air Force CE portion of Exercise SALTY DEMO to see whether these problems can be prevented in future exercises or war.

The result of this research was the formulation of a leadership development model to serve as a guide to both U.S. Air Force CE company grade officers and senior leaders for fostering the eladership skills and abilities needed in CE company grade officers.