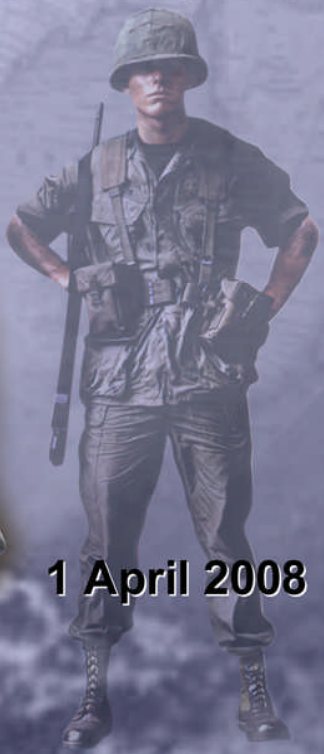
TRADOC Pamphlet 525-3-7-01

The U.S. Army Study of the Human Dimension in the Future 2015 - 2024



1 April 2008

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Foreword

From the Commanding General
U.S. Army Training and Doctrine Command

In August 2006, I directed a study to take a thoughtful and detailed look at what we are calling the *Human Dimension*. In looking to an uncertain future from 2015 to 2024, as we have in other concepts, we envision an increasingly complex future operating environment that will challenge individual Soldiers, their leaders, and their organizations in unprecedented ways. I wanted this study to serve as a point of departure for wide-ranging discussions, research, and investigations into the performance, reliability, flexibility, endurance, and adaptability of an Army made up of Soldiers, their families, civilians, and contractors.

The Army cannot afford to focus only on current operations as a predictor of the future. It must prepare people so that future commanders can sustain operations in a time of persistent conflict. Approved Army concepts describe the employment of Soldiers in the future. The *United States Army Study for the Human Dimension* goes further to explore human factors in war across the range of military operations. This study reaches beyond the issues of equipping Soldiers with hardware tools of war into the more subtle moral-ethical, intellectual, and physical components of Soldier development. We will follow this study with a formal approved concept in the near future.

The Army will always rely on an array of capabilities developed by other Services and the larger joint community in order to achieve its conceptual goals. Similarly, the entire joint force will regularly participate in multinational and interagency operations in the future. Thus, I strongly encourage the use of the *Human Dimension* study in our interactions with other Services and joint organizations, both to advance the intellectual dialogue regarding future operations and to strengthen the basis for defining future Army and joint requirements, in the spirit of joint interdependence. In the same vein, recognizing that the Army and the other services operate in support of the Nation, and that many of the required capabilities this study reveals are beyond the capability of the Department of Defense, I welcome and encourage comments from an even wider community.

As with all concepts, the *Human Dimension* concept, when published, will be in continuous evolution. I expect it to spur thought, motivate investigation and illuminate, through a structured approach, a strategy for the coordinated and holistic development of future capabilities. I think of it as an agent of change, change necessitated by an uncertain future in which the Army must be capable of responding to everything from humanitarian assistance to major combat. It will be refined and updated as new learning emerges from research, operational experience, and the results of continuing investigations into future operations.

William S. Wallace
General, United States Army

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Executive Summary

Introduction

The human dimension comprises the moral, cognitive, and physical components of Soldier and organizational development and performance essential to raise, prepare, and employ the Army in full spectrum operations. Army concepts acknowledge the Soldier as the centerpiece of the Army, but none, individually or collectively, adequately addresses the *human dimension* of future operations. This study is a precursor to a shorter concept that will join the formal family of Army concepts. It provides an integrating and forcing function that draws on other joint and Army concepts to describe those aspects of a highly nuanced human dimension interacting at all levels. Like all concepts, this study seeks to identify things that must change to meet future challenges. To do this, Army concepts project requirements from 2015 to 2024 and describe an operational or functional problem to be solved, and then express how the future Modular Force will best operate within that set of challenges and environments. Additionally, concepts identify required future capabilities necessary to operate in the manner described in each concept.

The Operational Problem

Current trends in the global and domestic operational environments will challenge the United States' ability to maintain a future responsive, professional, All-Volunteer Force. Soldiers will operate in an era of persistent conflict amongst populations with diverse religious, ethnic, and societal values. Faced with continuous employment across the full range of military operations, the Army will require extraordinary strength in the moral, physical, and cognitive components of the human dimension. Existing accessions, personnel, and force training and education development efforts will not meet these future challenges, placing at grave risk the Army's ability to provide combatant commanders the forces and capabilities necessary to execute the National Security, National Defense, and National Military Strategies.

Solution Synopsis

The Army will need to increase its human dimension focus in both the operational Army and Generating Force in order to meet future challenges and operate in an era of persistent conflict. Improved capabilities must address the broad range of human dimension actions necessary to prepare, support, and sustain this force. The Army must maintain a proper balance of moral, physical, and cognitive development with contributions from science and technology that can enhance Soldier physical and mental performance. The Army must widen the community of practice in the human dimension to continue to explore how we can best recruit, train, and retain an all volunteer force that can operate across the entire range of military operations.

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Department of the Army
Headquarters, United States Army
Training and Doctrine Command
Fort Monroe, Virginia 23651-1047

TRADOC Pamphlet 525-3-7-01

1 April 2008

Military Operations

THE U.S. ARMY STUDY OF THE HUMAN DIMENSION IN THE FUTURE 2015-2024

FOR THE COMMANDER:

OFFICIAL:

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History. This pamphlet is a new U.S. Army Training and Doctrine Command (TRADOC) study developed to inform the U.S. Army Human Dimension 2015-2024 concept, which is part of the Army Concept Strategy for the future Modular Force.

Summary. TRADOC Pamphlet (Pam) 525-3-7-01, *The U.S. Army Study of the Human Dimension in the Future 2015-2024* is the first of two human dimension documents. It provides the background study and analysis for the follow-on concept, *The U.S. Army Concept of the Human Dimension in the Future 2015-2024*. This pamphlet is a comprehensive research document outlining the future operational environment and its impact on the triad of the moral, cognitive, and physical components of the human dimension. It addresses as well the impact and considerations of stress, human capital strategies, science and technology, and leadership on the human dimension. This pamphlet contains a series of questions for further study and required capabilities to support the human dimension across the DOTMLPF domains.

Applicability. This pamphlet applies to all DOD, DA, and TRADOC activities that identify and develop doctrine, organization, training, materiel, leadership and education, personnel, and facilities solutions to human dimension initiatives. All active Army, Army National Guard, and Army Reserve operating forces, and the Army Materiel Command may use this pamphlet to identify future human dimension trends in the Army. This pamphlet may also serve as a

reference document to agencies within the joint community that are planning or are concerned with the human dimension.

Proponent and exception authority. The proponent of this pamphlet is the TRADOC Headquarters, Director, Army Capabilities Integration Center (ARCIC). The proponent has the authority to approve exceptions or waivers to this pamphlet that are consistent with controlling law and regulations. Do not supplement this pamphlet without prior approval from Director, ARCIC (ATFC-ED) 33 Ingalls Road, Fort Monroe, VA 23651-1061.

Suggested improvements. Users are invited to send comments and suggested improvements on DA Form 2028 (Recommended Changes to Publications and Blank Forms) directly to Director, ARCIC (ATFC-ED), 33 Ingalls Road, Fort Monroe, VA 23651-1061. Suggested improvements may also be submitted using DA Form 1045 (Army Ideas for Excellence Program Proposal).

Distribution. This publication is only available on the TRADOC Homepage at http://www.tradoc.army.mil/tpubs/pamsndx.htm.

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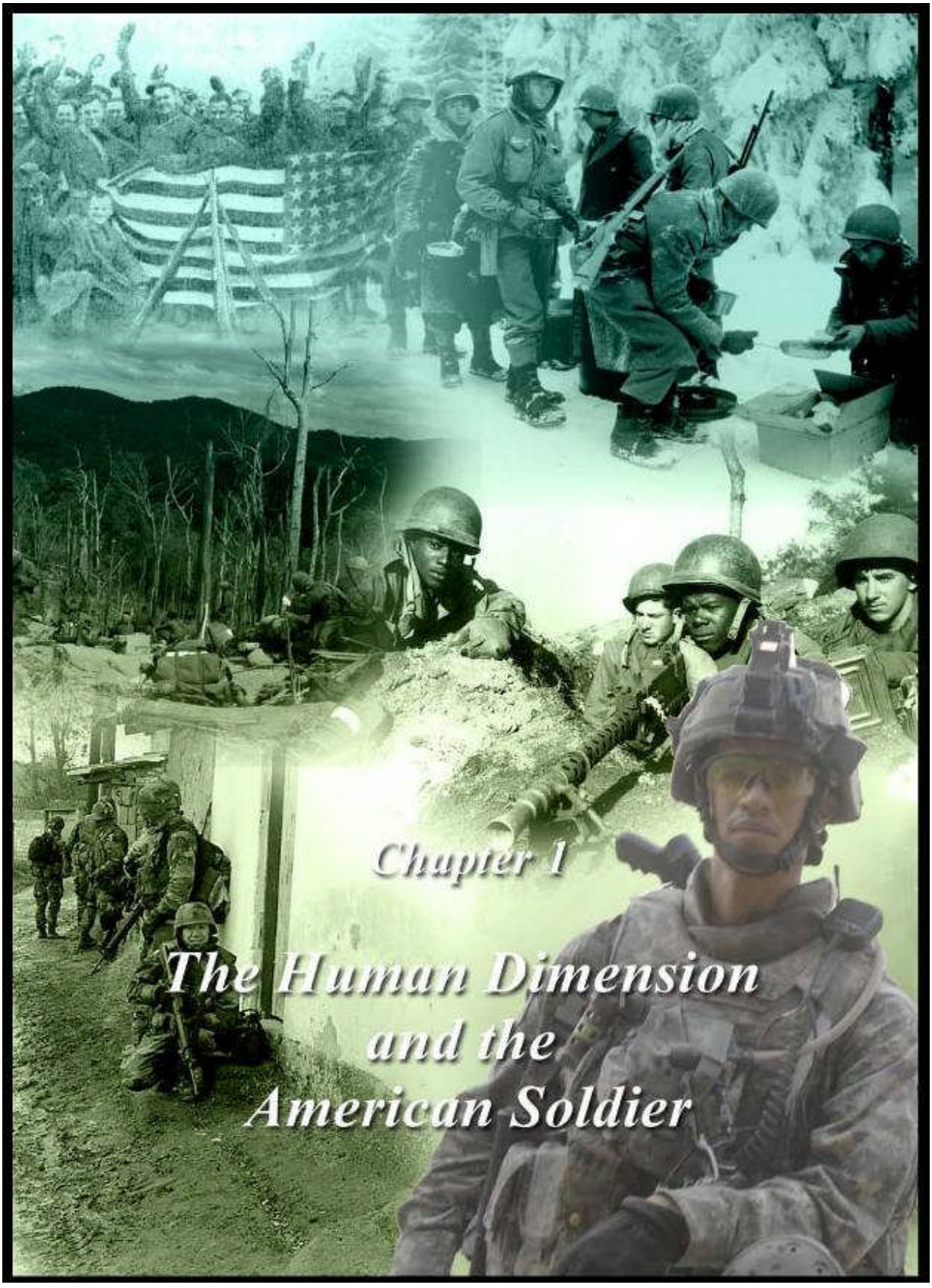
Chapter 1
The Human Dimension and the American Soldier

Man is the first weapon of battle. Let us study the Soldier, for it is he who brings reality to it.

Ardant du Picq
Battle Studies

Chapter 1
The Human Dimension and the American Soldier

1-1. Introduction

I Am a Warrior and a Member of a Team

As defined in this study, *the human dimension encompasses the moral, physical, and cognitive components of Soldier, leader, and organizational development and performance essential to raise, prepare, and employ the Army in full spectrum operations.* This definition is more traditional than revolutionary—a recognition that human nature will not change, and that war, notwithstanding the inevitable changes in the purposes, ways and means, will remain the savage clash of wills that it always has been. This study intentionally raises more questions than it answers about the complex human problems facing the Army in the next decade providing opportunities for further study.

Previous work in Army concept development for the period 2015 to 2024 comprehensively describes how the Army's future Modular Force will conduct future full spectrum operations (FSO). These documents, collectively known as the Army Concept Strategy, examine how the future operating environment will drive the Army to make significant changes in the domains of doctrine, organizations, training, materiel, leader development, personnel and facilities (DOTMLPF) in order to meet future challenges. All of these concepts emphasize the importance of the Soldier as the centerpiece of transformation, but neither individually nor collectively adequately identifies the implications they project on the Soldier. This study addresses those implications on the Army—particularly on Soldiers and their Families. It offers a multi-disciplined approach to considerations insufficiently treated in other concepts but critical to preparing the Army to fight and win our Nation's conflicts.

Concepts are precursors to future doctrine, and, as such, only as good as the assumptions they make about the future. Concepts differ from doctrine in their scope and in their effort to promote changes today that will enable operations in the future. Eventually, the ideas proposed in concepts undergo rigorous evaluation in exercises and experimentation before acceptance and integration into current doctrine. The *Human Dimension* concept, when published, will not likely have a single doctrinal equivalent document. The seminal importance of the human dimension transcends the scope of a single domain. As such, this *Human Dimension* study must be a dynamic and ongoing effort that sprouts further research and dialogue aimed as improving the Army's contribution to the Nation's future.

The Army's ability to perform its mission depends ultimately on its human element. Soldiers, leaders and other professional specialists must perform effectively as individuals and as members of teams and units if the Army, the joint force and the National defense efforts are to succeed. Recruiting new Soldiers, developing them into professionals, and sustaining their excellence requires full exploitation of the Nation's technical and human advantages as well as thoughtful, imaginative leadership. This will apply regardless of the length of service from single enlistments to a full multi-decade career.

The Army's *Human Dimension* concept, as amplified in this study, aims to recommend new ways to recruit and sustain a professional force capable of prosecuting today's missions and adapting to meet future needs that are likely to change substantially. The study prescribes deliberate and continuing review of the Army's mission and its human development implications (observation); ongoing assessment of the force and its human component (orientation); conscious and timely decisionmaking to guide development of the human resources of the Army (decide); and, timely and comprehensive actions to maintain human excellence and mission-readiness in the force from initial entry to senior levels both individually and collectively.

1-2. The Operational Problem

Current trends in the global and domestic operational environments will challenge the United States' ability to maintain a future responsive, professional, All-Volunteer Force. Soldiers will operate in an era of persistent conflict amongst populations with diverse religious, ethnic, and societal values. Faced with continuous employment across the full range of military operations, the Army will require extraordinary strength in the moral, physical, and cognitive components of the human dimension. Existing accessions, personnel, and force training and education development efforts will not meet these future challenges, placing at grave risk the Army's ability to provide combatant commanders the forces and capabilities necessary to execute the National Security, National Defense, and National Military Strategies.

1-3. Solution Synopsis

The Army will need to increase its human dimension focus in both the operational Army and Generating Force in order to meet future challenges and operate in an era of persistent conflict. Improved capabilities must address the broad range of human dimension actions necessary to prepare, support, and sustain this force. The Army must maintain a proper balance of moral, physical, and cognitive development with contributions from science and technology (S&T) that can enhance Soldier physical and mental performance. The Army must widen the community of practice in the human dimension to continue to explore how we can best recruit, train, and retain an all volunteer force that can operate across the entire range of military operations.

1-4. Organization of the Study

The *Human Dimension* study is unique to Army concepts not only in the subject matter but also in its organization. As a study intended to inform and provide the foundation for the *Human Dimension* concept, it provides an expanded, well-researched body of information.

Each chapter consists of three sections. The first section contains the key ideas and main text of the chapter. The second section contains a vignette that illustrates the challenges found in the future operational environment and establishes a context to help the reader visualize the impact of the human dimension in that environment. The third section then suggests an array of required capabilities needed to execute that chapter's key ideas, followed by recommended questions for further study.

This chapter introduces the operational problem that this study and the concept itself seek to address. It introduces the idea of a future of persistent conflict and goes on to describe the unchanging nature of conflict. It continues with a discussion of the Army as a profession and of the future challenges, Soldiers and all members of the Army family will face.

Chapter 2 further sets the stage for the rest of the study. It identifies future trends that will affect the human dimension. From it, the remaining chapters draw their relevance and validate the need for change.

Chapter 3 begins the discussion of the triad of the *moral, physical*, and *cognitive* components of Soldier and organizational development and performance with a discussion the moral component. This chapter establishes the primacy of a values-based Army imbued with the warrior spirit.

Chapter 4 moves to the physical component proposing that that future Soldiers will need more than mere physical training and fitness. It advances instead, a holistic fitness approach that takes into account all aspects of mental, emotional, and physical well-being.

Chapter 5 completes the triad with the cognitive component of Soldier development. It deals with training and education throughout the life cycle of Soldiers as individuals, and collectively in units, offering that learning must continue to be a lifelong process.

Chapter 6 presents a distinct treatment of the phenomena of combat and operational stress, as they will affect the Army of the future. It postulates that persistent conflict characterized by repeated deployments and intensive training and combat operations will continue to challenge the Army.

Chapter 7 extends the discussions in the preceding chapters to how the Army must access and retain its human capital including the Army Family. It takes into account forgoing discussions on the operational environment, the triad of human development, and the impact of a high operational tempo (OPTEMPO) on recruiting, developing, and retaining committed individuals.

Chapter 8 addresses both the impact and the potential contributions of S&T on the Army of the future. It introduces advances in both materiel and social sciences that can enhance human performance both physically and cognitively.

Chapter 9 serves as an integration chapter within this study by bringing the role of leadership and the development of future leaders into focus. In the context of all the preceding material, the leadership chapter highlights the preeminent role of commanders and leaders at all levels in comprehending and applying all aspects of the human dimension to accomplish the Army's mission.

Chapter 10 provides a summary of the concept and lays down a challenge to today's Soldiers and leaders to take action proactively to insure that the Nation continues to invest its energy and resources in the right way to maintain and evolve the preeminent land forces of the future.

1-5. The Future Environment and Unchanging Nature of Conflict

The Army has previously acknowledged the primacy of the human dimension as the decisive element of battles and campaigns; however, the pendulum has swung to the other extreme in recent times as discussed in the following paragraph.

> Many well intentioned advocates insist more high-tech weapons systems will reduce the need for Soldiers on the battlefield. But history—including very recent operational experiences—does not substantiate that conclusion. Science and technology cannot account for the dynamic interactions of the physical and moral elements that often impact conflict in unpredictable ways. While conflict presents technical problems, it is not itself one. That is why the practice of war remains an art, "infused with will, creativity and judgment.[1]

Responding to the ongoing operational challenges of the U.S. Army engaged globally in full spectrum operations, the Army must continue to focus on the Soldier. Interest in the human dimension and its interaction with the operational environment (OE) is increasing. To swing the pendulum back toward the Soldier, the Army must examine and discuss the broad range of human dimension considerations that influence recruiting, accessing, training, developing, and sustaining the force. This study considers holistically how to achieve the proper balance of Soldier and technology.

Soldiers are the heart of the Army and the foundation of its combat power. Soldiers serve with distinction in the most powerful and respected land force the world has ever seen. Strong in will, unyielding in spirit, serving in harm's way—Soldiers are the essence of the Army. More than a slogan or catch phrase, "Soldiers, the centerpiece of all Army organizations," recognizes that operations across the spectrum of conflict are essentially human endeavors. The Army's experience, since the end of the cold war, is that the military will continue to wage war primarily within the human dimension in future full spectrum operations for the future concept period (2015-2024).

> We will seek individuals ready and willing for warrior service. Bound to each other by integrity and trust, the young Americans we welcome to our ranks will learn that in the Army, every Soldier is a leader responsible for what happens in his or her presence regardless of rank. They will value learning and adaptability at every level, particularly as it contributes to initiative: creating situations for an adversary, rather than reacting to them. They will learn that the Army's culture is one of selfless service, a warrior culture rather than a corporate one. As such, it is not important who gets the credit, either within the Army or within the joint team; what's important is that the Nation is served.
>
> Secretary of the Army Les Brownlee
> Former Chief of Staff of the Army General Schoomaker
> *Serving a Nation at War*

Describing the human dimension in terms of the moral, physical, and cognitive components is not unique to this study. Other theorists and practitioners of war have described the human dimension in similar terms. J.F.C. Fuller developed a similar framework to analyze war in his work, *The Foundation of the Science of War*.[2] His model included the moral, physical, and cognitive realms. The Greeks also used three terms that are equally instructive when dealing with the human dimension: (1) the Penuma (spirit), (2) the Psyche (mind), and (3) the Soma (body). These areas are interdependent and proficiency or deficiency in any one area affects the other two.[3]

From an organizational perspective, there must be logic to the developmental process. How Soldiers make sense of experiences and then to continue to serve honorably and competently depends to a large degree on unit esprit de corps and cohesion. These are a direct reflection of the command climate and organizational culture established by leaders. Leaders must inspire Soldiers to achieve individual and collective excellence and accomplish assigned tasks in a manner consistent with the oath they swear to uphold.

> First and foremost, the Army is Soldiers. No matter how much the tools of warfare improve; it is Soldiers who use them to accomplish their mission. Soldiers committed to selfless service to the Nation are the centerpiece of Army organizations.
>
> *FM 1, The Army*

The developmental process is part of the professional lifecycle of Soldiers in units within the operational Army. This cycle begins with the Army's efforts to recruit quality people; it is then followed by initial training, education and acculturation; unit integration and training; employment; redeployment; and reset/train. It is cyclic in nature, continuously gaining and losing people who end their Army service or leave the operational Army for continuing professional education and development opportunities, joint assignments, and assignments within the Army's generating force or other operating forces. Service in these other assignments continues professional growth and contributes significantly to the process of developing individual character and competence.

Army plans do not adequately address reintegration of Soldiers following operational missions. The Army must look beyond redeployment and into reintegration into society after the completion of Army service. Service in support of persistent conflict characterized by repeated deployments into dangerous and psychologically stressful environments expose many old and some new challenges for returning Soldiers and their families. Many of the emotional and psychological stresses associated with fighting an ill-defined enemy in a hostile environment in far away lands are similar to those that emerged from previous conflicts. Psychological and physical injury and illness are the tragic results of warfare. The Army must learn from the past and adapt these lessons to its current and future operating environment.

There is More to War than Warfare

> Every war is going to astonish you in the way it occurred, and in the way it is carried out.
>
> Dwight D. Eisenhower

The U.S. Army is unlikely to face future opponents of its own choosing who are willing to test America's strengths. Inferiority in military power is unlikely to deter future adversaries. The global diffusion of technology offers opponents the opportunities to acquire alternative low cost weapons or develop military applications of commercial technology. This may be used to attack the U.S. asymmetrically and, in fact, there is a logic and economy in the idea that low cost techniques and tactics against enemies that attempt to counter with high cost methods. The proliferation and rapid turnover of information technology (IT) may not allow any combatant to acquire information dominance—a critical objective of U.S. transformation efforts.

While unable to rule out conflict with western peer nations, the most likely future clashes will be against opponents that will approach warfare from radically different perspectives that do not conform to U.S. or Western practices. They will view American moral, political, and cultural values as vulnerabilities to exploit. Future conflict will remain savage and bloody with potential horrific attacks on the U.S. and its allies. The Army will face an unconstrained enemy empowered rather than limited by technology. Such adversaries' objectives would not be to destroy or defeat U.S. or allied formations by force of arms, but to shatter political and popular will to continue protracted conflict.

> Neither a nation nor an army is a mechanical contrivance, but a living thing, built of flesh and blood and not of iron and steel. . . .The more mechanical become the weapons with which we fight, the less mechanical must be the spirit which controls them.
>
> J.F.C. Fuller
> *Generalship: Its Diseases and Their Cure*

Future conflict therefore is likely to usher in another era of small "savage wars of peace." Rather than retreat, the U.S. and its military forces, often with allies and other interested nations, will remain engaged in complex power struggles worldwide in order to protect national interests. For Army forces, a strategy of engagement places a greater premium on understanding the human dimension.

The Art of War

While there have been recent and profound changes in the ways and means to conduct war, its essence will not change. Conflict will remain complex and chaotic, and human frailties and irrationality will continue to characterize war's

nature. Just as in the past, the root causes of future conflicts will arise from fear, hatred, greed, honor, and ambition. The human dimension of war defies simple logic. For that reason, understanding as much as possible about this dimension becomes critical to influencing and achieving favorable outcomes in future conflicts.

War will continue to be primarily a contest of opposing wills. Ambiguity, danger, physical exertion, friction, and chance, constitute the "climate of war" which contribute to the "fog of war" with which commanders must contend in future operations. Technology, intelligence, and operational design can reduce uncertainty; however, commanders still must make decisions based on incomplete, inaccurate, or contradictory information. These factors will continue to play a predominant role in the environment of future full spectrum operations.

The Face of Battle

The information age is already radically changing the conduct of war. There are no "silver bullets" guaranteeing low cost, military solutions to every complex political or strategic problem. There is also the danger that technological solutions address situations military planners prefer to solve rather than those they are likely to face from cunning or lucky opponents. Contemporary developments integrated into the Army's transformation program will provide a major leap in capabilities that will be hugely significant in future operations, but, rather than a break with the past, technological change is simply occurring at a faster rate.[4] History demonstrates that societies have always raced to discover and apply new technologies. Transformation efforts will be increasingly useful, even necessary, but insufficient by themselves. Army doctrine correctly recognizes that warfare remains a test of the human qualities of Soldiers: their will, courage, and skill.

1-6. Essence of Army Service and Being a Professional Soldier

The Role and Purpose of the Army

The Army consists of the active Army and two reserve components, the National Guard and Army Reserve, and Army civilians. While the Constitution assumed the existence of a militia, Congress calls the Army into being under authorities of Article I, Section 8 of the Constitution, "To raise and support Armies" and, "To make Rules for the Government and Regulation of the land and naval forces." The Constitution also empowers the Congress "To provide for the calling forth of the Militia to execute the laws of the Union,

suppress Insurrections and repel Invasions," and "To provide for organizing, arming, and disciplining, the Militia, and for governing such Part of them as may be employed in the Service of the United States…"

Section 3062 of Title 10 U.S. Code announces Congress's intention: *To provide an Army that is capable, in conjunction with the other Armed forces of: Preserving the peace and security, and providing for the defense, of the U.S., the territories, commonwealths, and possessions, and any areas occupied by the U.S.; supporting the national policies; implementing the national objectives; and overcoming any nations responsible for aggressive acts that imperil the peace and security of the U.S.*

To accomplish these things, both the law and the Department of Defense (DOD) Directive 5100.1 state that the Army "shall be organized, trained, and equipped primarily for prompt and sustained combat incident to operations on land." DOD Directive 3000.05 interprets these Congressional mandates as requiring assignment of equal priority as core missions to combat and stability and support operations. It is no longer a question of assuming inclusion of the one in the other. America's Army must be prepared to do both, immediately.

A goal of the U.S. National Security Strategy is to "protect our Nation and honor our values…." There are numerous lists and documents offering variations of these American values. Most of these include America's core values: freedom and liberty, equality and justice, democracy, the family, faith and religion, integrity and honesty, and the pursuit of happiness. As American culture and society evolve, the interpretation of these values will change to adapt to contemporary norms. While enduring, these values are not immutable, nor do they necessarily reflect the reality of American life.

The Army Values

Loyalty: ***Bear true faith and allegiance to the U.S. Constitution, the Army, your unit, and other Soldiers.***

Duty: ***Fulfill your obligations.***

Respect: ***Treat people as they should be treated.***

Selfless Service: ***Put the welfare of the Nation, the Army, and subordinates before your own.***

Honor: ***Live up to all the Army Values.***

Integrity: ***Do what's right – legally and morally.***

Personal Courage: ***Face fear, danger, or adversity (Physical or Moral).***

Findings of three independent research organizations indicate that current Army leaders hold different values from those held by the Nation's youth, the next generation of Soldiers. More troubling, the studies show that the two sets of values are continuing to diverge.[5] This divergence presents a challenge to the Army. The Army must remain a values-based institution reflecting the Nation's values, yet some recruits may not possess the traditional values embraced by the Army's leadership. To continue its tradition as a model of selfless service to the Nation, the Army must embody values grounded in the Constitution and continue to ingrain them from the Soldier's first day as a recruit through eventual reintegration into civilian life.

The Essence and Enduring Values of the American Warrior

Courage, discipline, and faithfulness to the governing authority and one's fellow Soldiers, have been values of American Soldiers antedating the creation of an American Army in 1775. These values were born of the necessities of military practice and transplanted norms of British military example in their American colonies. In the general order announcing Congress's action calling a Continental Army into existence, George Washington called for observation of "exact discipline and due Subordination…a due observance of those articles of war, established for the Government of the army, which forbid profane cursing, swearing & drunkenness," and for officers and men "not engaged on actual duty, a punctual attendance on divine service, to implore the blessings of heaven upon the means used for our safety and defense."[6] The commander's expectation that subordinate officers see to the discipline and welfare of their Soldiers followed immediately. Congress has subsequently incorporated these latter expectations of Army commanders, in Title 10 United States Code, Section 3583, *Expectation of Exemplary Conduct*.

In the general order actually calling the Continental Army into being New Year's Day 1776, Washington emphasized order, regularity and discipline, observing, "it is Subordination & Discipline (the Life and Soul of an Army) which next under providence, is to make up formidable to our enemies, honorable in ourselves, and respected in the world..."[7] Competence in military duties was assumed within the understanding of discipline. Washington's scrupulous self-subordination to the Continental Congress and his actions quelling an incipient officer revolt in Newburgh at the end of the Revolution remain models for emulation by all American service members. For many years, the Army and the Nation considered the various oaths of office, articles of war and commission documents, adequate to express institutional values alongside the example of heroic conduct venerated publicly by the Nation and the Army. Following the war in Vietnam, it became the custom to codify official Army Values. There are seven: loyalty, duty, respect, selfless-service, honor, integrity, and personal courage.

The Soldier's Creed

I am an American Soldier.

I am a Warrior and a member of a team.

I serve the people of the United States and live the Army Values.

I will always place the mission first.

I will never accept defeat.

I will never quit.

I will never leave a fallen comrade.

I am disciplined physically and mentally tough, trained and proficient in my Warrior tasks and drills.

I will always maintain my arms, my equipment, and myself.

I am an expert and I am a professional.

I stand ready to deploy, engage, and destroy the enemies of the United States of American in close combat.

I am a guardian of freedom and the American way of life.

I am an American Soldier

To promulgate a more individual expression of the Soldier's identity than the values and their associated virtues, Generals Eric Shinseki and Peter Schoomaker, successive Army Chiefs of Staff at the century's turn, issued a statement of the warrior's ethos and its encompassing Soldier's Creed. The Soldier's Creed reflects the Army values and expresses, publicly, the essence and enduring virtues of the American warrior, the expectations of all uniformed Army members for themselves and their fellow Soldiers.

Field Manual (FM) 1, *The Army,* officially embodies Army values and Soldiers in the context of the history and traditions of Army service and illustrated in the conduct of Medal of Honor recipients. The creed and these values are part of every Soldier's acculturation to military service. While their form or language may adjust in the future, they are unlikely to change in their intent.

Moral, Ethical, Warrior Spirit Importance

Military character and the professional military ethic form the foundation of the Army profession and the bond of trust with the Nation. There is no formal expression of the professional military ethic, but there is general agreement that it consists of the shared values, attitudes, and beliefs that establish the standards of competency for the profession and guide the conduct of Soldiers. The system of ethical standards and principles defines Soldiers' commitment to the Nation. The Army Values, the warrior ethos, the Noncommissioned Officer (NCO) Creed, the Soldiers Creed, the oath of enlistment, and the oath of office articulate the norms and beliefs that guide military service. Adhering to the professional military ethic requires an understanding of the standards of personal and professional practice that Soldiers must demonstrate every day, in every duty, in peace and in war. More than a body of rules for individual behavior, the professional military ethic generates an ethos that encompasses the character of, and values peculiar to, the profession of arms. The functional requirements of warfighting, the democratic traditions of military service, laws and customs of land warfare, and our own national values, the oaths of commissioning and enlistment, and Army heritage, and traditions shape and influence the professional military ethic.

The professional military ethic in turn establishes an obligation of service not shared by all other citizens. This obligation begins with the oaths taken upon entering the Army, "a moral commitment, made publicly, which we secure with our reputation."[8] Nowhere is the significance and power of the oath better captured than in the capstone manual FM 1.

> Members of the American military profession swear to support and defend a document, the Constitution of the United States—not a leader, people, government or territory. That solemn oath ties military service directly to the governing document of the Nation. It instills a nobility of purpose within each member of the Armed Forces and should provide deep personal meaning to all who serve. The profession holds common standards and a code of ethics derived from common moral obligations undertaken in its members' oaths of office. These unite members of all the services in their common purpose: defending the Constitution and protecting the Nation's interests, at home and abroad against all threats.

Ultimately, the professional military ethic rooted in fundamental American Constitutional laws distinguishes a member of the American profession of arms from irregulars, mercenaries, terrorists, or members of another armed force. Legitimacy in the eyes of the government and American society is largely contingent on the application of the military ethic and the structure it gives the other attributes of the military profession, but this affords the profession considerable scope for autonomous self-regulation to ensure professional effectiveness.

The Army exists to serve the American people, protect enduring national interests, and to support and defend the constitution. The professional military ethic is essential to this primary mission. Over time, adherence to the professional military ethic produces habits of ethical and professional behavior essential to the primary mission. Lived by all Soldiers, a strong professional military ethic and moral character are the foundation for the warrior spirit that must permeate the entire force today and in future full spectrum operations.

1-7. Challenges to the Future Soldier

Just as today, tomorrow's warriors must perform their vital functions in the face of grievous wounds, injury, or death. Often in future conflicts avoiding harming the innocent or inflicting excessive damage will assume critical importance to mission accomplishment. This can create circumstances more complex and frustrating than the acceptance of the straightforward risk of engaging an armed foe on the battlefield. The Soldier must prepare for transitions from intense close combat, to providing security or humanitarian assistance to hostile or indifferent others. The presence of embedded and ubiquitous media increases leaders' challenges to remain sensitive to the wear and tear of even routine duties, and to remind Soldiers of the ethical responsibilities of their honorable calling as American Soldiers.

Achieving technical competence and increasing cognitive abilities require better training and education. This training and advanced technical competence will create opportunities for Soldiers to opt out of continued service and join the civilian workforce. The Army must recognize and address this challenge if it is to retain these Soldiers in sufficient numbers and quality.

Because Army ground forces are expensive and no longer can rely on an endless supply of recruits, there may be an insufficient number of Soldiers available for prolonged deployments. The pressures on family maintenance imposed by successive separations will become as familiar

to Army members as they have been to Navy personnel in the past. The Army will continue to "enlist Soldiers and reenlist families," and reenlistment is likely to become more difficult as wear and tear on families increases. Today, Army spouses have their own ambitions and often bear the burden of living alone. Assuming this trend continues in the future, the Army must consider this and other trends such as dual career families, single parent military families, and the impact they will have on future retention.

1-8. Summary

TRADOC Pam 525-3-7-01 examines those areas within the human dimension that are essential to improving the quality and effectiveness of Soldiers in the Army's future Modular Force. It addresses the broad range of human dimension actions necessary to prepare, support, and sustain this force while conducting full spectrum operations. It offers an insight into the human dimension of the future domestic and international OE. It discusses what it means to be a Soldier in that OE; and identifies required future capabilities.

TRADOC Pam 525-3-7-01 acknowledges the constant and continual interaction of the human dimension with other aspects of the OE. The U.S. Army cannot compromise the moral, ethical, and spiritual values that define the essence of the U.S. Army and an American Soldier. The process encompasses the entire life cycle of the Soldier. The study suggests ways in which the Army can maintain the proper balance of moral, physical, and cognitive development with the more tangible hardware of warfare. A deeper understanding of the human dimension will increase the Army's effectiveness in manning the Army, equipping the Soldier, and taking care of its Soldiers from recruitment to eventual reintegration into civilian society.

Today and for the near future, the Army will remain engaged in persistent conflict with an all-volunteer force. The Army's challenge is to conduct a wide range of missions around the world each with its own distinctive conditions. The Soldier has been and remains the centerpiece of the U.S. Army. It is his or her adaptability, resilience, intelligence, and will that continues to add to our Army's and our Nation's rich history of successes and victories.

While preserving its core values, the U.S. Army must ensure that its Soldiers and leaders have the skills and the tools to fulfill their duty and perform their mission to "fight and win the Nation's wars." The *Human Dimension* study, introduces a human dimension strategy to meet those obligations and stimulate professional discussion on the influence of the human dimension on future Modular Force and the Army Concept Strategy. This strategy and these professional exchanges will become the foundation for turning this study into a full-fledged concept. The next chapter describes the future environment and the trends that influence the human dimension and, in turn, provide impetus for changes to meet future challenges.

Human Dimension Vignette

A running vignette set in 2020 amplifies the essential message of each of the chapters. The vignettes are fictitious. The notional backdrop for the combat related vignettes comes from the scenario and plans developed for the U.S. Joint Forces Command and U.S. Marine Corps Joint Experiment titled Sea Viking 04.

This experiment combined all the U.S. Services plus allies from the United Kingdom (UK), Australia, and the United Nations (UN) that form a coalition at the request of the legitimate Government of Indonesia (GOI) to overthrow a rogue provincial governor in the central province of Sumatra. The situation in this scenario is hypothetical and intended only to provoke thought and discussion.

Indonesia presents significant challenges in many domains. Sumatra is geographically similar to Vietnam with large coastal plains, a formidable mountain range rising from 9,780 to 12,467 feet, and triple canopy jungle covering much of the island. The combat systems described in the vignettes are also notional future vehicles. The Army future brigade combat teams (BCT) as used here employ three full spectrum vehicle (FSV) variants: the infantry, the full spectrum vehicle-gun (FSV-G), and a full spectrum vehicle-reconnaissance (FSV-R) version.

The vignettes jump around in time and place depending on the message they strive to emphasize. Their message necessarily addresses one or more issues in the chapter, but do not purport to represent a comprehensive treatment of chapter content. All names are fictitious and not intended to represent anyone living or dead except as noted.

Road to War

In 2015 Ibn Ander, a retired Indonesian Army Major General, served as the Military Governor of the provinces of Sumatra Barat and Riau. Over the years, working with Sujava Pirates, Ander carves a financial empire built on graft and piracy in the Strait of Malacca. Ander has established covert relationships with radical Muslim factions. By 2019, these pirate attacks threaten to close the Strait seriously threatening world economies.

The UN authorizes a multinational naval force under American command to intervene, stop the piracy, and maintain the sea-lanes through the Strait of Malacca. In the fall of 2019, Ander proclaims himself Caliph of the Sumatran Caliphate. Large segments of the Indonesian armed forces swear allegiance to Ander whose message of *Sumatra for the Sumatrans* resonates throughout the country. The GOI invites the UN to form a coalition to depose Ander. The U.S., UK, and Australia rapidly commit to support the effort militarily.

Using the U.S. Pacific Command as the planning headquarters, coalition leaders decide to launch a major attack on Ibn Ander. Planners devise a relatively short-term campaign culminating in a joint forcible entry operation with the objective of seizing the Caliphate capital

city and capturing Ibn Ander. The loyal GOI forces will take over the old provinces and restore government control after neutralizing the Anderian forces, at least according to the plan.

Figure 1-1. The Sumatra Caliphate

University of Notre Dame May 2019

Second Lieutenant Brian Wilson stepped off the stage diploma in hand thinking the graduation was a bit anticlimactic after the commissioning ceremony earlier that morning. He loved his time at Notre Dame, but nothing could top getting his bars pinned on by his father. Retired Colonel Tom Wilson had donned his dress uniform, the old green one now replaced by blues, for the ceremony. Brian's mother, also retired from the Army as a nurse, wore her uniform as well. To top it off, his sister, Heather came in her Reserve Officer's Training Corps (ROTC) uniform. "A real family affair," he thought, more proud of his folks service than ever before.

Wilson was bound for Fort Benning for the U.S. Army Ranger School and the Basic Officer's Leadership Course. Commissioned Armor, Brian was a Distinguished Military Graduate who got his first choice of schools and assignment. While he didn't expect to slog around as an infantryman, he knew that the modular BCTs of the 4th Infantry Division—his destination after schooling—contained a mix of many branches and specialties. The Ranger tab meant something special to him. His father wore it proudly, and his instructors in the Pasquerilla Center where ROTC classes met were all ranger qualified. They'd extolled the virtues of the course telling the

students "Best leadership laboratory in the world!" Brian would find out first hand soon enough. Now it was time to celebrate!

Fort Carson, Colorado, December 2019

Second Lieutenant Wilson stood in line at the personnel processing center behind a young sergeant. He was anxious to get to his unit and thought this standing in line business was flat stupid in this digital age. He groused to no one in particular, "What a colossal waste of time! We should be able to in-process electronically in this day and age."

"Excuse me, Sir," the Sergeant said very respectfully. "I've been in this line about five minutes and it seems to be taking about that long for each Soldier. Would you like to move up, Sir? You are an officer, after all."

"No, of course not," Wilson replied ashamed for complaining out loud. "I suppose this is a necessary evil."

"Right, Sir. It does seem a bit evil and all. I mean getting that nano chip implant is not supposed to hurt, but it would be a damned difficult thing to do on line, don't you agree, lieutenant?"

The gentle comment stung Wilson, but he thought the sergeant was wise beyond his years. "That's why we're here? I heard about this, but I didn't think they'd fielded the implants yet.

"Hey, Sergeant, where are you headed?"

"Third Brigade, Sir. And you?"

"Me too. Good thing I didn't try to pull rank on you. I'd be a pariah on arrival!"

Chuckling, the sergeant held out his hand. "Sergeant Deans, Sir. Billy Deans, Mrs. Deans' little boy from Birmingham, Alabama."

Wilson took the sergeant's hand just as the clerk said, "Next."

Wilson told the sergeant that if he needed a ride to the brigade he should wait for him outside. Sergeant Deans agreed, wondering just what kind of car the lieutenant drove. He'd seen the jump wings and Ranger tab. This guy was no wuss. He'd also treated Deans pretty decently. Maybe he'd be better than his first platoon leader. Deans winced inside when he thought about that screaming madman. Thank God he'd made sergeant and got to do the basic noncommissioned officer course (BNCOC). It got him out of range of that training company. Things were awful sour there. It wasn't just the lieutenant. Some of the NCO were just as short fused, maybe taking the lead from the platoon leader. Deans already knew enough about leadership that he didn't want to emulate any of those guys. BNCOC taught them better. "Well," he mused, "even that unit was better than being back on the block in Birmingham." He

was a professional now, right? That's what the instructors told him at BNCOC, and he wanted to believe it.

April 2020

"Platoon, Attention!" bellowed 2nd Lieutenant Wilson. "Stand at ease!!"

When Wilson announced that Sergeant Billy Deans had won the Soldier of the Month competition, the platoon erupted in shouts and applause. Deans was a vehicle commander on the FSV-G in First Squad. Making vehicle commander in the 4th Infantry Division was no small accomplishment. Running the FSV-G through Gunnery Table 8 on Carson's east range had nearly cost Wilson his platoon leader status. In the three plus months he'd been at Carson, he'd learned more about the real Army than in four years of ROTC.

They were loaded for a rotation at the NTC at Fort Irwin. Every fighting vehicle commander, including all the officers, had to pass the grueling requirements of Table 8 or they weren't going to Irwin, at least not as vehicle commanders. Wilson hadn't given much thought to Lieutenant Colonel Rick Stacy's professional development class until he got to his own qualifying run on the FSV-G and nearly muffed it on the first target set. Now he appreciated far more clearly that being a "Domer" and wearing the Tab, 'din't 'mount ta beans,' as Sergeant Deans often said to his crew. It took practice, teamwork, and enormous attention to detail to handle all the systems on the FSV-G, stay cloaked from view, make the timed exercise, and score better than 700 out of 1000 points. "Professional, indeed," Wilson remembered Stacy saying at a pep talk to the battalion officers before the range week. "We're all true professionals, officers, and NCOs. Ours is a special calling, and not many of your accountant or doctor friends back home could measure up on Table 8."

"Bravo 33 this is Bravo 3, data, over," Wilson remembered calling Deans before he almost blew the platoon kills battalion segment. Platoon kills battalion—an exercise that stretched even the technologically superior family of FSVs—pitted a four vehicle platoon against a 40 vehicle adversary battalion. This was a major expansion of the qualification table instituted in 2017 combining the old tables 8, 10, and 12 into one. The new Table 8 had crew qualification as one segment and now included the team and platoon segments of the old ten and twelve.

"Bravo 3, Bravo 33, data received, moving to target reference point (TRP) 6."

Wilson looked at his display seeing Deans' FSV-G moving just the opposite of what he'd ordered. He touched the point he'd selected for Deans to overwatch his next bound only to realize his mistake. It was TRP 8, not six! Between Deans and six, there was a deep ravine, probably mined, likely under opposing force (OPFOR) observation. If he didn't stop Deans he faced a failing score on this segment, and this wasn't even the hardest of the Table 8 tests. "Bravo 33, correction TRP 8, I say again eight." Wilson said watching the message scroll automatically and pushing the send button. He waited for an acknowledgement, but none came. If he were forced to broadcast live instead of using data bursts it would cost him twenty points.

"Bravo 33, Bravo 3, acknowledge my last."

Nothing. "Crap!" Wilson shouted, seeing the word appear on the screen with a question mark on the send button.

The two vehicles were close to three hundred meters apart. How to get Deans' attention without a voice message? Wilson swore under his breath thinking how stupid it was to mistake an eight for a six. He wiped the screen clean, which he should have done earlier Just then, it dawned on him that he could fly his Wasp unmanned aerial system to Deans and send the correction on the laser. Could he do it fast enough? He passed his gloved hand over the right icons spinning up a Wasp and keying in the instruction to home to Bravo 33 and beam the new TRP. "Come on baby," he whispered, figuring about 45 seconds flight time.

The Wasp lifted off the FSV-G rear deck and shot over the ground at less than five meters over the terrain. Wilson held his breath counting the seconds knowing that Deans was halfway to six and disaster. "Come on, dammit! Get there!" The words dutifully appeared awaiting his touch to be sent. He touched erase and told his driver to roll, slaving the driver's picture to his designated position. He poised his thumb over the push to talk button ready to break radio silence. Losing twenty points on the range sucked, but letting one of his crews get sucker punched for his mistake just didn't cut it.

"Br…," he started to say without fully depressing the button when the screen read "TRP 8, Roger!"

Qualification on Gunnery Table 8 is an Army regulatory requirement for all Abrams tank and Bradley fighting vehicle crews. It is a truly demanding rite of passage for today's armor and infantry Soldiers. In this fictional account, the Army has upped the ante making what was tough even tougher. This story points out the relationship between officers and NCOs and the rigorous and demanding training the future Modular Force will continue to require. It demonstrates as well that the old saws, "It ain't rocket science," and "This isn't brain surgery," for the future Soldiers no longer apply. It *is* science and it *does* require the precision of surgery. The profession of arms is now and will increasingly be a true calling. Lifelong study does not occur in the months or years from entry into service to the requirement for new officers and NCOs to apply the kinds of skills necessary to the serious business of war. The Army must start their preparation as early as possible and get it right or the consequences to the U.S. are too painful to consider.

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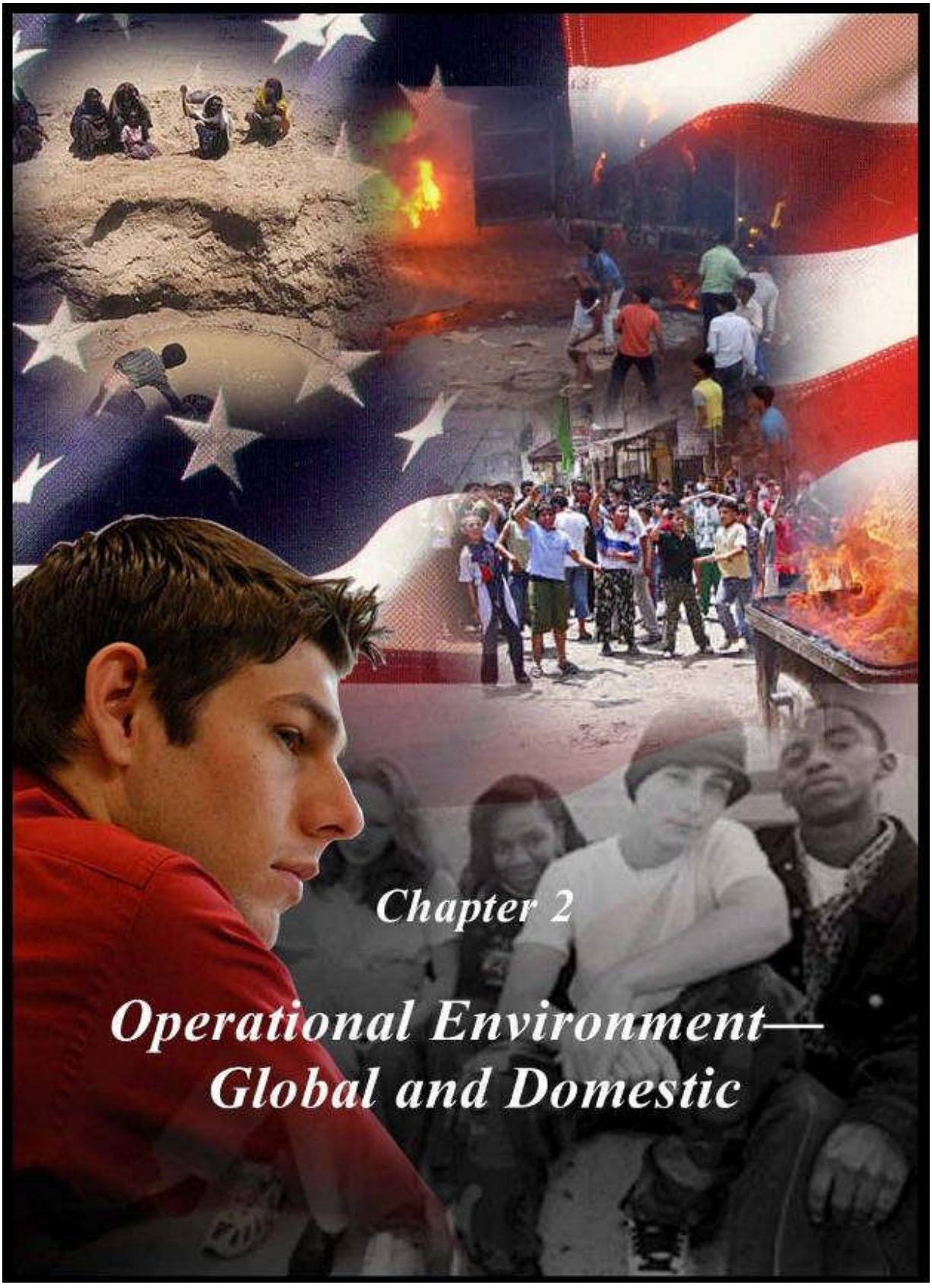

Chapter 2
Operational Environment—
Global and Domestic

If you know the enemy and know yourself, you need not fear the result of a hundred battles. If you know yourself but not the enemy, for every victory gained you will also suffer a defeat. If you know neither the enemy nor yourself, you will succumb in every battle.

Sun Tzu

Chapter 2
Operational Environment (OE)—Global and Domestic

2-1. Introduction

While there may be debate as to the nature and extent of change occurring in the contemporary OE, there is little doubt that it is changing. This chapter outlines the major trends shaping the future OE, discussing their manifestation in both the global and the domestic environments, and examining the challenges these environments place upon the human dimension. Though the U.S. may not feel the full impact of these trends until the years 2025 and beyond, their influence is shaping the contemporary OE as well as the future OE addressed in this study (2015-2024). As it changes, the OE inevitably influences the human dimension and vice versa. The characteristics of the components of the human dimension—moral, physical, and cognitive—dictate the decisions and choices people make as they interact with their environment, individually and collectively. These decisions and choices define the nature and the character of change in the environment. As this change defines the future OE, it will in turn influence the components of the human dimension. It is in the interest of man to shape and control that change to the ultimate benefit of humankind, while minimizing negative impacts. Many of the trends observed today—population growth, climate change, depletion of natural resources among them—are difficult to predict with any degree of certainty into 2020 and later. These trends help define the challenges the Army will face in the future. Uncertainty and the potential to be surprised only reinforce the need for adaptable, imaginative, and innovative Soldiers.

The domestic environment from which Soldiers are drawn is also changing. Immigration, education, and economics are all affecting the physical, moral, and cognitive norms of society. The Army must anticipate these changes and develop the tools, processes, and programs that will allow it to recruit the future Soldier, educate and train the Soldier, and prepare that Soldier morally and ethically to fight and win the Nation's wars. Experts cannot precisely predict the extent of domestic and global OE change, but predict significant change in any case. This mandates a change in the ways and means by which the Army staffs, trains, and employs the Army. This chapter identifies the impact that the future OE has on the human dimension and the requirements, capabilities, and considerations of the human element interacting with that environment.

2-2. The Joint Operational Environment (JOE)

Joint Publication 3.0 defines the OE as:

> ...the composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. It encompasses physical areas and factors (of the air, land, maritime, and space domains) and the information environment. Included within these are the adversary, friendly, and neutral systems that are relevant to a specific joint operation.

Understanding of the OE is critical to our ability to engage in and win any conflict. To that end, the JOE provides a framework for considering the future and determining the impact of the OE on joint force operations. The JOE anticipates a range of potential future OEs. It discusses critical variables, trends that will influence those variables and the range of possible conditions shaped by those trends. Finally, the JOE considers the implications of these alternative futures on the way we will train, equip, and employ the future joint force. As the military seeks to both anticipate and shape the future, the JOE forms the basis for that debate and argument essential to innovative and creative thinking.

The JOE establishes a baseline for understanding the enormous complexities the future Modular Force will face while planning and conducting operations. It examines future threat capabilities and identifies environmental influences on modern conflict. While not intended to be the definitive forecast of major global tensions during the next 20-25 years, the JOE seeks to profile many of the dominant trends shaping the future environment and outline their consequences for military operations. Among these trends, the social and cultural aspects of the human dimension dominate the OE.

2-3. International Trends

Today, and conceivably for the first half of this century, the U.S. faces several challenging, dangerous, and potentially inescapable geo-strategic trends. These trends include social and cultural factors; the dynamics of geopolitics and governance; the globalization of economics and resources; the revolution in science, technology, and engineering; and, global climate change.

> A few words on 'persistent conflict' – Believe we collectively face a period of protracted confrontation among state, non-state, and individual actors fueled by expanding Islamic extremism, competition for energy, globalization outcomes, climate and demographic changes, and the increased use of violence to achieve political and ideological ends.
>
> GEN Casey
> Remarks to the National Press Club, Sept 07

In September 2007, the Chief of Staff of the Army highlighted six issues of primary concern: climate change, globalization, shifting demographics, failed and failing states, competition for energy, and nuclear proliferation. As these trends develop and interact, they will shape the future OE in which our future Modular Forces will operate over the next several years of persistent conflict.

Globalization

Globalization will continue to increase as a future trend. Global interconnectedness will change relationships at fundamental levels and be reflected in and made possible by expanded flows of information, technology, capital, goods and services, and people throughout the world.

While globalization is not a new phenomenon, the rapidly accelerated blending of business, technology, and culture coupled with near instant media coverage offers both opportunities and threats for the future. Globalization enables and substantially shapes other major trends in the OE. Globalization can manifest itself in many ways, but primary ways include interdependent economies, the empowerment of non-state actors, porous international boundaries, and the declining ability of the nation-state to control fully its own territory and economy, and to provide security and other services. As globalization shrinks the world and forces the interaction of differing societies and cultures on an unprecedented scale, it also drives changes in all three of the components of the human dimension. The exchange of information and the ability to travel quickly and inexpensively have made the interaction of differing cultures commonplace. People must adapt mentally and physically to a wide range of environments. While retaining allegiance to a nation, tribe, ethnicity, religion, or similar group, people are increasingly examining their role as a citizen of the world. They receive exposure to different societies and cultures whose moral basis may differ from their own. People must cognitively understand these differences and adapt their behavior to compensate. Characteristics of the human dimension are the driving force behind globalization. In turn, globalization influences the components of the human dimension.

Growth of the global marketplace and the increasing volume of international trade and commerce characterize the economic aspects of globalization. Continuing internationalization of markets will integrate geographically dispersed sets of customers and suppliers, creating increasingly interdependent economies. This exposes local markets to opportunities and risks as the global economy fluctuates. There will be winners and losers in a global economy led by market forces, especially in the field of labor, which will be subject to particularly ruthless laws of supply and demand. As international economic ties broaden and strengthen, the influence of individual nation states may decline. This decline in nation-state influence, coupled with the rise of economic influence, complicates statecraft and security. Economic interdependence will foster a corresponding political interdependence, strengthening regional and international organizations.

The explosive growth of information technologies enables globalization. The proliferation of technologies has effectively leveled the playing field. Ubiquitous and cheap access to the World Wide Web and telecommunications has made knowledge available to individuals and communities sometimes quicker than it is by governments. The rapid access to and exchange of information has created communities of interest brought together for a mutual benefit. In some respects, these communities might become more significant than nation states. Unfortunately, there is no guarantee that these communities will be benign to U.S. interests. Empowered non-state actors who want to harm global economy will have many options available.

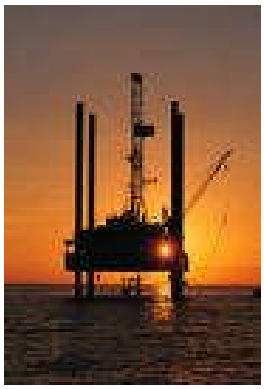
While globalization can be beneficial, particularly economically, there is a potential downside. Globalization will in some areas increase the gap between the world's "haves" and "have nots." Ready access to information will increase the awareness of those left behind in the climb toward global prosperity, in essence, creating a condition of global relative deprivation. In addition to this awareness of economic disparity, globalization will increase the interaction among disparate cultures. The ubiquitous nature of U.S. and Western television and films serves to diffuse western culture throughout the world. In many cases, this creates a negative reaction from those objecting to the western influence and defending the purity of their own culture.

Combined with demographic trends, these situations may accentuate instability and unrest in those areas.

Globalization has other adverse effects as well. As Thomas Friedman pointed out, it diminishes the ability of states to control what takes place within their territory. People often blame states for things that they cannot change, thus increasing the potential for conflict and even violence. Second, globalization increases security vulnerability by facilitating the flow of technology, money and information to violent groups, and by creating additional points of vulnerability that states must try to protect.

Oil and Energy

Oil and natural gas will continue to provide a significant fraction of the world's energy usage. Unfortunately, both are finite resources, increasingly difficult and expensive to extract and transport. As demand continues to rise and growth of production declines, there will be inevitable competition for access to these resources. Oil in particular is an indispensable everyday necessity, more so in developed countries.



Concerns over access to energy and the potential of conflict arising from the competition for energy resources will generate change in the components of the human dimension. Continued access to energy is a vital interest for an individual's physical well-being. The quest for energy has stimulated a cognitive effort to develop alternative energy sources and greater efficiency in using current sources. As availability of energy and other resources continues to decline, competition will increase. The potential for this competition to escalate to conflict raises moral and ethical questions that must be reconciled with the physical requirements and the capabilities of the cognitive component.

The current trends regarding oil production and consumption expose a potential crisis of supply and demand. Experts project a decline in oil production by 2030 in at least 33 of 48 oil-producing countries[9] while in the same timeframe, worldwide oil consumption will rise by 50 to 60 percent.[10] Emerging economic giants China and India will increase their consumption by factors of two and three respectively. As more nations and a greater percentage of the world's population rely on oil to maintain and improve their standard of living, the potential for conflict increases.

At the same time, the looming energy crisis invigorates areas of research and development that have lain dormant or been neglected for the last few decades. Alternative energy sources that could not compete with the relatively cheap oil of the past will become economically viable in a future of rapidly rising oil prices. Potential alternative energy sources include:

- Nuclear fusion: could supply vast quantities of energy, with little pollution; commercial applications expected by 2050.[11]

- Hydrogen: many potential transportation applications. Efforts in Europe to prepare market for hydrogen as a viable, clean energy carrier and reduce Europe's dependence on oil.[12]
- Biofuels: available in small quantity, and increasing slowly, 1 billion gallons of biodiesel in U.S. by 2010, 7.5 billion gallons of bioethanol in U.S. by 2012.[13]
- Solar: many applications in use; solar power can be price competitive by 2015.[14]
- Wind: many applications in use; five percent of available wind energy would meet global energy needs.[15]
- Other options for alternate energy sources include photovoltaics, a form of solar energy using semiconductor material to produce energy, and geothermal.[16]

Though research and development in these alternative energy sources is increasing, economic payoff and environmental impact are still considerations that limit these efforts. While it is difficult to predict beyond the 2020 timeframe, research indicates that alternative energy sources will provide only 8 percent of the total energy requirement in 2020.[17] Current investment in programs to reduce demand and/or increase supply of total energy requirements is inadequate to have a significant impact. In a worst-case scenario, future competition for oil among first world nations may lead to direct military confrontation.

Demographic Trends

In common with other trends, interaction with each other and with the external environment influence demographic trends. An inescapable fact of the shifting nature of demographics is a constant and ever increasing rate of population growth. A growing population exacerbates the negative aspects of globalization, intensifies the competition for scarce resources, and increases the pressure on governing entities to provide adequate governance. Current projections place the global population in 2035—currently 6.5 billion—at 8.5 billion.[18] That figure in itself challenges the world's ability to achieve and maintain an equitable and satisfactory standard of living for everyone. A closer look at the nature of this population growth and the additional trends such growth drives reveals additional challenges to stability in the world.

The character of the world's developed nations is changing. Declining birth rates and increasing longevity contribute to an aging population in Europe, Japan, Russia, and elsewhere. In Europe, immigration swells the ranks of minorities, whose greater birth rate threatens native majorities in several European Union nations. Japan and Russia have no significant immigration and their populations are actually declining. Demographic patterns in developed nations challenge their continued stability and economic success. Much of the immigration in these areas is illegal. Illegal immigration exceeds 2.5 million persons per year in the developed world. This can affect how America defines its interests and values in dealing with other nations.

It is an unfortunate fact that 98 percent of the world's population growth is in the less developed regions of the world—those same areas left behind as globalization drives a booming

economy.[19] This drives a south-to-north migration pattern that threatens the "Islamicization" of Europe and stresses the U.S. and Canada's ability to absorb immigrants. Despite these migration patterns, due to high birth rates the least developed countries will hold nearly 85 percent of world population (6.6 billion) in 2025.[20] In 100 years, Muslims have duplicated the tenfold growth Europe experienced from 1500 to 1900.[21] In fact, Muslim populations could outnumber Christian Europeans by 2025. In many regions, the escalating growth has led to a youth bulge—disproportionate numbers of young men and women under the age of 30. Combined with a stagnating economy and ineffective governance, the youth bulge sets the conditions for discontent leading to instability and potential conflict.

Urbanization

A corollary of these demographic trends is the explosive boom of the world's urban population and the accompanying growth of the urban environment. By 2030, over 60 percent of world population (4.9 billion) will live in urban areas.[22] Several mega-cities such as New York City, Sao Paolo, and Jakarta, will have populations exceeding 20 million. As a result, these and other mega-cities might assume "state-like" powers, causing problems of governance challenging the real power in the country. Much of this urban growth will be concentrated in coastal areas, with the majority of urban populations (57 percent, 2.8 billion people) living within 60 miles of the coast by 2025.[23]

This growth can challenge the government's ability to provide basic services. The large concentration of people will push the urban infrastructure to its limits. Waste, contamination, and disease will consume an unaffordable portion of cities resources. The danger of epidemics clearly increases in such situations, as does the likelihood of local diseases spreading globally. In the socioeconomic arena, urban areas will experience an increase in unemployment, drug abuse, crime, and homelessness. Organized crime thrives in urban terrain and can challenge even the largest police forces and legal systems. As private capital fuels continued urban development, the cost of housing and infrastructure will also grow.

In many respects, in less developed countries rural areas will pay the cost of urbanization. As populations flow into urban areas in search of greater economic opportunity and available social services, rural areas can suffer a brain drain. Rural areas, left with the least educated people, may incur a position of even lower social and political power. The agriculture sector can suffer in its fight for government resources and support. A continued decline in rural conditions might set the stage for the emergence of ungoverned areas that can evolve into safe havens for criminal enterprise and present other challenges to progress and stability.

Education Trends

Education has become a critical factor in information age societies. Global demand for international higher education will increase from 1.8 million international students in 2000 to 7.2 million international students in 2025.[24] Information based societies must maintain educational excellence, or attract the best and brightest foreign students, to maintain technological dominance. For the student seeking opportunities to continue his studies, IT has reduced costs of an advanced education (reduced overhead costs) while increasing access (online vice in class).[25]

This has already created a brain drain that impairs the ability of developing countries to participate in the global economic and political arenas as skilled individuals migrate to where jobs are available. While some regions and nations – notably India – have been able to slow this trend, it remains a global issue. The educational gap between those with access to IT and those without is growing rapidly. Today's have nots are in danger of remaining in this status permanently. While the number of advanced degrees issued worldwide is rapidly increasing, the global illiteracy rate—currently established 18 percent—is likely to rise.[26]

Environmental Issues and Climate Change

The interaction of humans with the physical environment inevitably creates a tension between the needs of society and the health of the environment. Existing trends can exacerbate these tensions in the future environment. Environmental issues continuing into and intensifying in the future include climate change, resources depletion, and pollution.

The Earth's climate is the macro-component of the physical environment. By 2100, climate change could significantly alter the planet.[27] Many attribute the warming observed over the last 50 years to human activities. If atmospheric concentrations of greenhouse gases continue to rise, average global temperatures and sea levels will rise as a result, and precipitation patterns will change. The predicted effects of climate change over the coming decades include extreme weather events, drought, flooding, sea-level rise, retreating glaciers, habitat shifts, and the increased spread of life-threatening diseases. The most drastic effects (flooding, drought) will affect traditionally unstable parts of the world. This will have a twofold impact compelling much of the population to migrate to more stable areas, thus requiring increasing international support to large populations in affected regions.

The stress of natural disasters can exacerbate tensions among ethnic, religious populations growing in marginal, resource constrained areas, significantly increasing instability of failed or failing nation states. Conversely, a major natural disaster such as the tsunami that devastated wide areas of the Indian Ocean basin in 2005 could unite nations and enhance the U.S. reputation as a willing crisis respondent. In Indonesia, for example, the Free Aceh rebel movement lost momentum in the struggle to survive the results of the tsunami.[28] The significance of climate change cannot be underestimated. Unlike most conventional security threats characterized by a single entity acting in specific ways and points in time, climate change has the potential to result in multiple chronic conditions occurring globally. The resultant combined effects can intensify the chances of instability and persistent conflict.

Humans are consuming the world's natural resources at an alarming rate. While access to oil, gas, and minerals has a great impact on the world's economic well-being, fresh water sustains life and has no substitute for humans, animals, or plants. (See fig 2-1 for the demographic stress factors.) Fresh water is a zero sum game; increasing population and increasing demand lead to water scarcity. Population is increasing most rapidly in the underdeveloped regions, where the amount of water required to produce vegetable-based diets is one third of that needed for meat-based diets in the richest regions (600 cubic meters per person per year, vice 1,800 cubic meters per person per year).[29] Given current trends, by the year 2025, 230 million Africans may not have ready access to fresh water. By 2025, there will be over 50 water-stressed countries.[30] This

means they may not have sufficient water resources to maintain current levels of per capita food production from irrigated agriculture (even at high levels of irrigation efficiency) and meet reasonable water needs for domestic, industrial, and environmental purposes. To sustain their needs, water must transfer out of agriculture into other sectors, making these countries or regions increasingly dependent on imported food. Water pollution caused by sewage, agricultural runoff, and industrial chemicals adds to the problem. Daily, 6,000 children die because of unsafe water and pollution, and, worldwide, 50 percent of sickness and death come from water-related diseases.[31] Due to the combined effects of scarcity and pollution, 1.1 billion people in developing countries do not have safe water.[32]

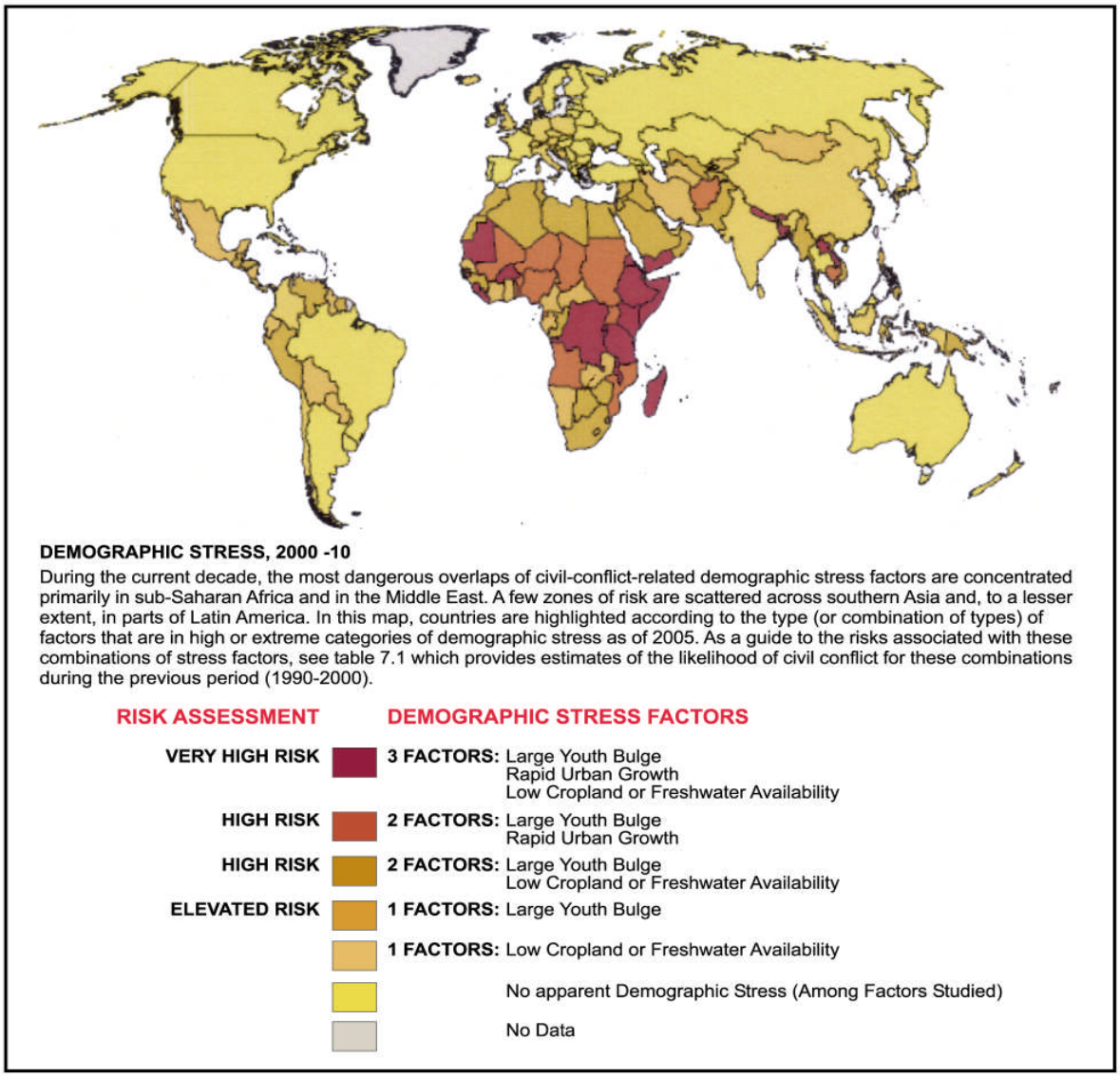


Figure 2-1. Demographic Stress Factors[33]

Air pollution exacerbates water scarcity and results in approximately 4.6 million deaths annually.[34] Over time, this consumption of resources and pollution of the environment has resulted in the loss of innumerable species of plants and animals.

Despite efforts of the international community and a number of developed nations, trends harmful to the environment continue to grow. Demographic and economic pressures generated as developing nations seek their place in the global community will cause greater consumption of resources, more intense competition for those remaining, and continuing pollution of the environment. Conditions in the future OE might generate mass migration of stressed populations, greater impact from natural disasters, more disease, food shortages and an increasing potential for conflict over scarce resources. This bleak picture rises from current empirical data and scientific observation. Reversing these trends will be an incredibly difficult task requiring unprecedented global cooperation. If the trends continue without abatement, the consequences economically and politically will challenge diplomacy and could result in widespread warfare.

Patterns of Influence and the decline of the Nation-State

Global trends will stress the capability of the traditional nation state to satisfy the internal needs of its people while securing itself from unwanted external influences. Alternative organizations and entities will evolve to challenge the supremacy of the nation state as the favored institution for governance and its presumed monopoly of violence. These challenges will take the form of well-meaning but ineffective international organizations, profit-oriented multinational corporations (MNCs), and unstructured movements dissatisfied with the status quo. Organized crime with its social implications and economic impact will influence the well-being of societies and nations. While nation states will struggle to meet these challenges and maintain their preeminent position, these non-state actors will increase their influence over global affairs.

Recent events emphasize the inability of international institutions of governance to keep pace with the forces of instability. The African Union has failed in its bid to replace Ethiopian forces in Somalia. UN initiatives have been unable to prevent Hezbollah from reconstituting its forces in Lebanon or even stop the genocide in Darfur. International economic and financial organizations promote a model of growth and development, which can be destabilizing to fragile states. The International Monetary Fund, World Trade Organization, and World Bank try to mold developing nations to the same form and do not as readily assist those countries that will not follow their guidance. Neglecting developing nations most in need of assistance contributes to the growing disparity between world economies. The inability of impoverished nations to climb the economic ladder serves as a continuing source of instability.

MNCs constitute 52 of the world's 100 largest economies, economies greater than one third of the world's nations.[35] The $3 billion of value added annually by each of the top ten MNCs exceeds the gross national products of some 80 member-states of the UN. MNCs contribute to an increased flow of capital to developing countries—and annually invest more than $1.4 trillion (2004) in international commerce. Their control of capital enables these large corporations to influence national policy. With some work forces employing hundreds of thousands of workers, MNCs can exert political and social pressure on nations as well as direct economic pressure.[36] MNCs have shown a willingness to accept some of the responsibility that comes with the exercise of power. When governments refused to help, Merck Pharmaceutical distributed free medicine to treat "river blindness" in Africa and Latin America.[37] In the past 30 years, the number of MNCs has increased tenfold. As globalization increases the interdependencies of the global market place, the number of MNCs will continue to grow exponentially. Their ability to influence national decisions and international activities and their inclination to contribute to the global well-being will keep pace with that growth.

Crime occurring outside traditional jurisdictions is diminishing influence of the nation-state system. During 2005-2020, organized crime is likely to thrive in resource-rich states experiencing political and economic transformation, such as India, China, Russia, Nigeria, and Brazil. States whose ideology calls for substantial government involvement in the economy will be particularly vulnerable to corruption. Organized crime will take advantage of instability in failed and failing states to entrench their activities where there is little or no existing government control. Anti-U.S. sentiment can be another unifying factor between organized crime and insurgents. Criminal groups will form loose alliances when and where they share mutual interests. Islamic extremist and insurgent groups will combine legal and criminal activities. For example, the Shebani Network has legal enterprises such as Zam Zam Cola Company, while it smuggles improvised explosive devices from Iran to Shia elements in Iraq.[38] While crime in itself is not a new challenge to the human dimension, its potential for growth in the next decades and the extent to which criminal elements cooperate with weak politicians, insurgents and other agents of instability is a cause for growing concern in the future OE.

A recent trend is the rising influence of so-called "unstructured movements." These movements, driven simply by a common motivation or shared goal, often lack central leadership. Enabled by globalization and access to advanced IT these movements can grow spontaneously, rapidly spreading their message around the globe. Because of their willingness to use violence

and their ability to leverage the international media, the global Islamic insurgency is the best known and possibly the most influential today. However, feminist movements, health movements, and religious communities achieve similar exposure and success. Sheer numbers and worldwide participation ensure that their concerns are able to influence decision makers in the political, economic, and social arenas. Continued globalization and access to IT will encourage and enable the formation of many more such movements in the future OE.

The competition between these entities and the nation-state and the internal competition among these entities can manifest itself in a wide variety of actions. While cooperation and peaceful competition will most likely remain the norm, there will be instances where the competition will result in violent conflict. While these competitions will strengthen legitimate international, regional, and national governance, they can conversely leave us with failed or failing states, ungoverned areas, instability, rogues states, and safe havens for criminal or terrorist organizations. The trends in geo-politics and governance leave the U.S. with many opportunities to advance the human condition. The U.S. must successfully meet these challenges to temper global chaos.

2-4. The Domestic Environment

As a player on the global scene, the U.S. responds to the global trends that shape the international political, social, economic, and security environments. At the same time, the U.S. is experiencing many of these same trends internal to our Nation. Together, these external and internal influences shape the future U.S. domestic environment. This environment in turn, shapes the human capital that forms the human dimension. Appreciation of the future domestic environment and its implications for the physical, cognitive, and moral components of the human dimension is essential.

> When we assumed the Soldier we did not lay aside the citizen.
>
> George Washington

Globalization

The U.S. from the beginning has been one of the drivers of globalization and one of the leading benefactors of its economic and social benefits. There is a real danger that the U.S. is losing its economic and military dominance, and, along with it, its preeminent position as leader of western civilization. The cold war provided a basis for a clearly articulated national security policy. The competition between the democratic West and the communist, largely Soviet, bloc nations motivated the people of the U.S. to become world leaders in S&T, industry, manufacturing, and education. Since our perceived victory in the cold war, the trends have reversed and statistics indicate that we have lost much of this leadership. As global trends raise the level of the U.S.' economic, political, and even military competition, the domestic environment continues to challenge its ability to meet that competition.

Demographics and Immigration

One effect of globalization and the proliferation of information technologies is the awareness by the oppressed and poverty stricken that their plight is not universal. Globally, this ignites large migrations from depressed areas of the world to those areas perceived to offer greater economic opportunity and social justice. While the U.S reputation as the world's leading democracy may have suffered from recent events, it remains a favored destination for immigrants, legal and illegal. Though the U.S. acknowledges its character as a nation of immigrants, unchecked and uncontrolled illegal immigration has a negative impact on U.S. social, legal, medical, and educational systems. With an additional 400,000 to 700,000 immigrants illegally entering the U.S. every year, the stress on these systems will continue to grow.[39] Minorities comprise about one-third of the U.S. population. With 54 percent of immigrants coming from Mexico, Central, and South America, Hispanics have become the largest single group.[40] Increasingly, immigrants are forming ghettos where assimilation into the larger U.S. society is unnecessary, and, for some, undesirable.

The Hispanic immigrant population, once centered in the border states of the Southwest U.S., has begun to migrate across the country for the same reason that motivates global migration: economic opportunity. The U.S. Hispanic population will disperse more than is currently the case, even as several states in the Southwest region of the U.S. might possibly have a Hispanic majority by the 2015-2024 timeframe.[41]

The U.S. has also seen a flow of people from rural areas into the urban environment. The reasons for this shift are many and diverse, but can ultimately be attributed to the same bottom line—the perception that urban centers offer greater opportunity for economic well-being and a more favorable social climate.

People born between 1980 and 2000 will have the greatest influence on the nature of the Army in 2015-2024, either as experienced Soldiers or new recruits. These learners belong to a generation known by several names including the Millennials.[42] Although each millennial is an individual with unique characteristics, when viewed collectively certain broad conclusions can be drawn about them as a generation. Ethnically and culturally, they are a diverse generation. According to the Washington Post, "Forty-five percent of the nation's children under age 5 are racial or ethnic minorities. The percentage is increasing mainly because the Hispanic population is growing so rapidly. The country as a whole is 33 percent minority."[43] Due to these and other

changing demographics, the use of languages other than English is common. Americans are more tolerant of other languages now, whereas assimilation was the norm in the past.

Socially, "[the millennials are] the 'Babies on Board' of the early Reagan years, the 'Have You Hugged Your Child Today?' sixth graders of the early Clinton years, and the teen contemporaries of Columbine. They are the children of the No Child Left Behind Act of 2001 and the first generation to grow up in the post 9/11 world."[44] Their structured lives included parents shuffling them from one activity to another all under the watchful eyes of teachers, coaches, tutors, and music instructors. Wide-ranging child protection laws and safety products that came out of the 1980s have made millennials one of the most sheltered generations. Consequently, they have emerged as a tolerant, pragmatic, ambitious, and optimistic group. They believe themselves to be influential and unique. They are familiar with all things digital, having grown up immersed in computer games, MP3 players, DVDs, digital video recorders, cell phones, and the Internet.[45] Their values are not constant, but are variable according to the exigencies of the moment. Their perception of right and wrong will probably differ from their leaders. The majority of high school students freely admit to lying, cheating, and stealing, yet see nothing wrong with their ethics and character.[46] These factors if left unchanged will have a major impact on future recruiting and training policies.

Education

Education systems in the U.S. must continuously adapt to meet the needs of the community and the Nation. In the future, a growing population within a complex and fluid demographic environment will increasingly challenge a school district's capacity to provide resources and innovation in developing techniques to educate its children. Factors such as migration into urban areas in search of economic opportunity put additional demands on school systems already short of resources and qualified teachers. Recent immigrants and first generation children speaking a language other than English in the home create a demand for English-as-a-second-language instruction that further taxes existing resources. Even well-funded suburban schools may find it difficult to engage children accustomed to an environment of constant stimulation, starting with television and video games, who may find traditional education venues dull and boring. When this generation begins to serve in the military, the Army will face the challenge of training, educating, and in some cases, socializing these young adults. To absorb recruits successfully across the entire range of qualified candidates, the Army must be willing and able to apply the most advanced techniques of learning, training, and education, supported by the latest S&T enhancements and augmentation. The traditional one-size-fits-all basic training and advanced individual training programs may not be adequate to meet this challenge.

This growing and diverse population has meant an increased challenge for the education systems of the U.S. By many measures of success, the U.S. is failing to meet the challenge. At the elementary level, only 72 percent of children aged 12-17 are able to perform at a level appropriate for their age.[47] Children in poor communities fare worse. The U.S. literacy rate is declining.[48] Ranked against other developed countries, U.S. children do poorly in math and science and fall at the bottom in advanced physics.[49] At the graduate level, the number of U.S. students pursuing advanced degrees in hard sciences fails to meet projected needs for those skills. A politically charged debate as to the reasons behind this failure remains unsettled, but the

consensus holds that the U.S. is losing ground among other industrialized nations with regard to the overall educational standard of the population.

The Economy and Energy

Though the U.S. economy is losing its relative dominance as a global power, it remains the world's largest and most productive economy.[50] Yet even as changing demographics increase the demand for employment, education, medical services, and other services, other global trends serve to stifle continued growth.

The economic aspects of globalization have contributed toward a dramatic shift from an industrial age manufacturing domestic economy to an information age service-based economy trading in processes and knowledge. While competing with global competitors for skilled science, technology, and engineering professionals, the U.S. finds itself with a surplus of skilled and unskilled labor. High-paying manufacturing jobs, such as those in the auto industry, are disappearing at an alarming rate while a demand for low-paying jobs, such as those in agriculture and construction, grows. This contributes to a growing income gap.

The rapid increase in the cost of energy has put a damper on economic growth. The rising cost of oil and natural gas affects virtually every aspect of our society and individual lives. As an increasing share of the budget, both public and private, goes toward energy needs, the portion available for other required services can shrink. Efforts to increase supply clash with environmental concerns of air pollution, greenhouse gas, carbon dioxide emissions, loss of natural habitats and forests, vegetation, wildlife protection, conservation of resources, and others. Efforts to decrease demand enjoy some local limited success, but have minimal impact on the macro perspective of energy supply and demand. Energy costs will continue to consume a growing share of our national economy.

Climate Change

While the debate concerning the cause of global warming continues, its existence is beyond debate. Climate change appears to contribute to the frequency and intensity of extreme weather and natural disasters. Whether climate change is directly responsible for such storms as Hurricane Katrina or not, we must acknowledge the reality of rising temperatures and changing climatic conditions in the U.S. and be prepared to respond to large-scale humanitarian issues, from drought to flood to environmental health crises.

Information

The U.S. has benefited significantly from the proliferation of information technologies and their use in global commerce. However, universal access to information technologies has stimulated economic competition. The internet enables outsourcing of support and services and levels the playing field in the international marketplace. The U.S. technological edge is eroding as China, India, and others exploit their cheap labor to gain a competitive advantage over U.S. technology industries and related services.

Largely, Americans enjoy access to these technologies for domestic financial and business purposes as well as a robust entertainment function. However, a downside to universal access to information technologies has emerged in the form of cyber crime. Not only does the internet enable direct fraud and theft, but it also serves to enable other criminal activities, including drugs, gambling, cyber-stalking, and pornography.

Information technology affects the security environment in multiple ways. It strengthens niche ideologies and violent movements or communities of interest. It contributes to the spread of technology and other information used by extremists, and it complicates strategic communications and information operations by providing multiple sources of information.

Health and Fitness

The Soldiers of the future are the children of today. A simple review of any article on America's current obesity epidemic points to problems for the future Modular Force. From 1980 to 2000, the number of overweight children in the U.S. tripled from five percent to 15 percent.[51] In 2003, almost two thirds of high school students were not physically active during physical education. While many government agencies are working to reduce or even reverse this deadly trend, American popular culture seems less and less concerned. A 2006 study Center for Disease Control report highlighted the accelerated pace of obesity incidences. In 2000, 22 states reported 20 percent or more of their population was clinically obese, and one state, Colorado, was at less than 15 percent. By 2005, all 50 states had obesity rates above 15 percent, and only three states reported obesity rates of less than 20 percent of the population, compared to 17 states reporting over 25 percent of the population as obese (fig 2-2).[52] Overlay on these statistics the need for our future Soldiers to perform in a physically demanding, emotionally stressful operating environment, and the challenge the Army faces in developing Soldiers' physical performance is readily apparent.

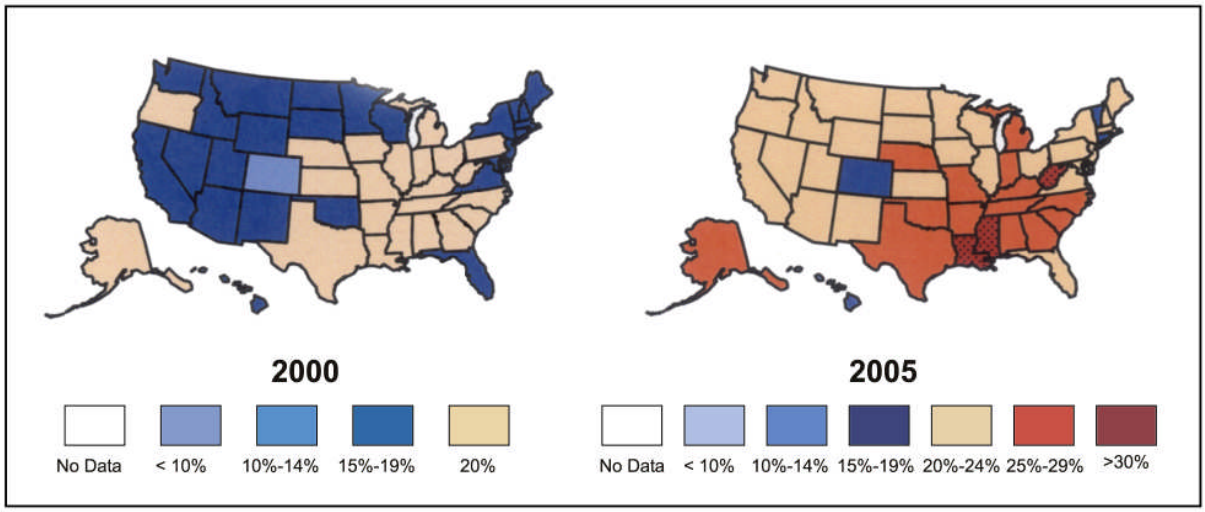


Figure 2-2. Obesity Rates

With a few temporary exceptions, the U.S. has enjoyed an ever-improving quality of life throughout its history. By some measures, this trend has slowed but has not reversed, though the

overall health of the population is increasing. However, there is a decrease in the health and fitness in some segments of our population. This stems principally from two phenomena. One associated with our youth—a propensity to indulge in an excess of comfort and convenience, and one with our aged—an increasing lifespan. A fast food diet and a tendency toward passive entertainment (video and electronic games) contribute to climbing obesity rates for 10-17 year olds throughout the Nation, and estimates indicate that only 30 percent of U.S. adults exercise.[53] As they age these adults are increasingly afflicted with heart disease, cancer, stroke, respiratory disease, and injury. Sophisticated and expensive medical capabilities have increased our lifespan, but have been unable to eliminate the infirmity that comes with advanced age. While people are living longer, there is an accompanying increase in chronic conditions and enduring pain associated with age. Treating this population consumes 16 percent of today's gross domestic product and this demand will continue increasing to 2015 and beyond.[54]

Science and Technology (S&T)

Complacent with its success in the cold war and comfortable with its reputation as the world's sole superpower at the end of the last century, the U.S. was ready to sit back and enjoy the fruits of its success. Along with the peace dividend and a dramatic drawdown of military forces came a loss of a sense of urgency to maintain a dominant S&T posture. When the world's economies began to experience the benefits of globalization and the world marketplace, emerging competitors suddenly had the means to invest in their own S&T research. Today, 70 percent of S&T research occurs outside of the U.S., and the U.S. share continues to diminish. While the U.S. remains a leader in innovation and advanced technology, it can no longer claim dominance. U.S. S&T communities must now compete for investment and profit with growing economies around the world such as those of China, India, and South Korea. While many U.S. institutions, commercial, educational, and governmental, remain at the leading edge of S&T developments, we cannot depend on quality indefinitely trumping quantity. Furthermore, as much of the research and development of advanced technologies emerges from commercial entities, the U.S. ability to protect that technology in the interest of national security suffers from a determination and a requirement of those entities to derive a profit from their investment. This results in a proliferation of advanced technologies that further erodes the U.S. ability to maintain a global technological dominance into 2015-2024.

2-5. Conclusion

Our understanding of the future OE is never static or complete. The myriad interactions occurring daily guarantee that next week's interpretation of the future will differ from today's interpretation. Any examination of the future OE is of necessity an ongoing effort that continuously generates changes to the product.

The global and domestic trends discussed above shape the future domestic environment. As these trends interact, they tend to amplify both the positive and the negative effects. Over time, this tends to create and increase a disparity of wealth, education, health, and general well-being. In many ways, this disparity is self-perpetuating and it breeds resentment between the extremes. Trends indicate that the demand for services (population growth) will outpace the nation's ability

to supply those services (economic growth.). There will be a large segment of our population that is undereducated, unemployed, and in poor health.

Implications of the OE

Some suggest that to study human history is to study the nature of conflict. A never-ending struggle for wealth, knowledge, and power, motivated by ideology, religion, ethnicity, and virtually any other differences among peoples that can motivate a struggle characterizes the story of civilization. The OE sets the conditions that may lead to conflict. An ever-shrinking pool of vital resources, (food, water, energy), combines with the growing global population to stress the capacity of the world to provide an acceptable quality of life for all. At the same time, the information age has dramatically expanded people's access to knowledge and information. These phenomena—shrinking resources, growing populations, ubiquitous access to real time information—interact and merge to create a collective sense of global relative depravation.

Global relative depravation (resentment stemming from the realization that others in the world enjoy a higher quality of life) is an all-too-human reaction to the growing gap between haves and have-nots. In the not too distant past, people living in near poverty under miserable conditions assumed their experience was the norm. The elites, fearing class envy, did nothing to dispel this perception. In some cases, the former Soviet Union for one, the ruling authorities made a point of convincing its people that they were better off than the rest of the world by delivering their messages while controlling access to external information sources. Today, and increasingly so in the future, individuals, cultures, and societies recognize their plight and seek to improve their situation.

Time is in itself a constant, but its relation to the evolving OE and the impact it has on the human dimension in that environment is in constant flux. Globalization and information technologies have enabled near-instantaneous flow of information and compressed the time allowed for planning, decisionmaking, and the execution of operations. The Army must develop processes and capabilities that enable military decisionmaking to meet the challenges of the real time battlefield. If not managed properly, adversaries can manipulate this frenetic pace of operations forced upon the Army to support their operations and strategy. The compression of time feeds stress and contributes to strategic exhaustion. This exposes the Soldier, the Army, and the American people to a constant stream of near real time information detailing events in the OE. Over time, this begins to erode public support for the Army's efforts. The adversary, who thinks in terms of decades or more, is less vulnerable to the pressure of time. His strategy may well rely on protraction—that is, the deliberate avoidance of decisive events while prolonging the conflict. The U.S. must consider and adopt a strategy and implement human dimension programs and processes that support an Army committed to persistent conflict over an extended time.

The physical environment encompasses a fixed amount of resources. The introduction of the human elements into that environment also introduces a competition for those resources. In an inverse relationship, available resources are shrinking as the demand for them is growing. When those resources remain relatively plentiful, that competition can be resolved with cooperation. As those resources become more constrained cooperation will evolve into competition. Actual or perceived shortages increase the potential for open conflict.

Globalization and the proliferation of information technologies increase the opportunity for competing cultures to interact. In most cases, this interaction results in a mutually acceptable relationship. In other instances, the interaction exposes irreconcilable differences and an increased potential for conflict. As competition in the global marketplace drives U.S. and MNCs to reduce costs, they will seek to take advantage of the explosion of information and information technologies. High tech jobs can be easily exported to low-cost nations with an excess educated population—India and China among others. As sensitive hardware and software development moves offshore, U.S. basic functions—finance, transportation, and even defense—become targets for developing an "enemy within." The volume of imported technology and the expertise needed to detect a threat challenge the Army's ability to detect and guard against malicious code or pre-programmed failure.

More than ever, the U.S. National Security Strategy must be an interagency effort, integrating all elements of national power. Those elements will include not only our diplomatic, economic, and military capabilities, but also the power of the human dimension that motivates and executes the details of that strategy.

This chapter presents a particularly negative outlook across many aspects of the future OE. Based upon factual research the trends are indeed daunting. There may be reason for hope that U.S. and global efforts will somehow check or even reverse these trends, but prudence dictates considering the future with a wary eye. Obviously, global trends require solutions beyond the means of nations let alone the U.S. Army, but the Army cannot ignore their impact. The next three chapters discuss the moral, physical, and cognitive components of the human dimension. It is only with an understanding of the future OE, an appreciation for the components of the human dimension, and the complexity resulting from their interaction that the Army can generate the changes necessary to prepare to man, train, equip, and employ the future Modular Force to conduct full spectrum operations.

Vignette

Pekanbaru, Sultan Sayref Qasim II International Airport, Sumatra, Indonesia, April 2020

The small delegation from the UN moved slowly through the crowd of foreigners struggling to get on a flight out of Sumatra. They had come at the invitation of Ibn Ander, self-proclaimed Caliph of the recently declared Holy Islamic Anderian Caliphate. Ander and his staff wanted to show the delegates that the Caliphate was a noble and benign regime. In four carefully orchestrated days of visits to model neighborhoods in Dumai, Padang, and Pekanbaru, the nine men and four women in the delegation were almost ready to buy Ander's line. They'd seen nothing but tidy streets with busy shops and bustling crowds. Their keepers, they knew, were steering them away from the inevitable slums they had expected, but the schools and hospitals they had seen were clean and functional. They remarked among themselves that it looked like Singapore in many ways. Pekanbaru's reputation as the cleanest city in Indonesia was no exaggeration.

Any charade ended yesterday when word of a Coalition force moving by air and sea and close enough to land reached the capital. Armed Anderian Soldiers appeared everywhere along with their curious mix of Russian, Chinese and French combat vehicles. The anticipated invasion set off a mad scramble to escape the Central Province of Sumatra. All the roads were jammed as were the ports, ferry stations, and airports. Pekanbaru International was a madhouse. After eighteen months of phony war with Ander manipulating a band of pirates plying the Strait of Malacca, the GOI had convinced the Coalition to act.

American, British, Australian, and New Zealand ships were reported to be less than a day's steaming from the southwest side of Sumatra. Every indication was that the Coalition would attack to seize Padang and then strike across the mountains toward Pekanbaru. Anderian defenses were ready. They would inflict devastating destruction on any Coalition attempt to land near Padang. Whatever made it ashore would then face a withering hail of missiles, armed Unmanned Aerial Systems and Anderian forces' fires as they withdrew into the thick jungles and up the slopes of the western ridge mountains rising to over 12,000 feet.

Ibn Ander knew he couldn't defeat a determined Coalition offensive, but he thought he could force a negotiated peace that left him in charge of the Caliphate. It had happened elsewhere when the westerners lost the stomach for casualties and drawn out conflict. They called it asymmetric warfare. He would fight the information war and play the economic cards he'd drawn all the while giving them as much asymmetry as he could manage. That was why he was letting the UN delegation get out. Surely, they would go back and tell the world how different the Caliphate was from the rest of corruption-ridden Indonesia.

"These Infidels never learn," Ibn Ander said to his Chief of Staff of the Armed Islamic Warriors. "All we need to do is control the information operations and kill their precious men and women until they cave under the pressure of public polls. How comforting, General Dumai, don't you agree?"

"Holy and Honorable Caliph," the former GOI general replied, "I'm afraid I don't share your disdain for the Coalition's might or their failing memories. Let me reinforce the garrisons on the Strait of Malacca just in case. These Coalition officers, especially the Americans, won't be fooling around, but you already know that Ibn," Dumai said, carefully using his leader's first name as he'd been instructed.

"And that's the key, Dumai! Draw them in. Create a quagmire. Isn't that one of their favorite descriptions for their military fiascos? With all their sophisticated equipment, our mountains and jungles will swallow them while your warriors pick away at them. It's all as we've planned, my friend. Just another page from Imam Osama, God be good to his soul. We must be patient."

General Dumai was not at all naïve. He'd risen in the Indonesian Army attending British and American staff and war colleges. He knew he couldn't think like the Brits or Americans, but he knew how they thought. While he didn't dare oppose Ibn Ander, he didn't relish facing the western forces closing on Sumatra. He burned his bridges when he joined Ander. Maybe the former governor was right. Maybe their relatively small force could stall the Coalition. He'd

certainly laid the groundwork to make landing at Padang more costly than the beaches at Normandy. His fleet of gunboats would swarm on the Seabase, as the Americans called their assemblage of ships, sink several large warships and channel the others into the minefields. What the mines didn't get, the new Silkworm VII antiship missiles would take care of. He took great pride in his air defense array. If the coalition wanted to practice their Ship to Objective Maneuver doctrine with their V22's and CH-53XMs, his automated and man-portable integrated defense would take out a bunch of those vaunted machines and their precious cargo. He remembered the U.S. Army's operational maneuver from strategic distances concept, but discounted their ability to execute this ambitious idea of launching an attack from fort to fight. Just let them try to follow their own concepts. Maybe his forces could just pull this off, he silently prayed.

The loudspeaker announcements resounded throughout the Pekanbaru terminal throwing the already chaotic mass of passenger aspirants into a maelstrom of bodies pushing to get to the outside doors and out of the terminal. The UN group tried to stay together under Tony Dodson's control. Dodson was the Chief of Delegation. A former Marine (still a Marine if you asked him), Dodson could hardly believe what he heard. They'd been in the terminal all afternoon. Nightfall was minutes away and now the Anderian's were announcing an infidel airborne assault on the airport! Dodson thought, "they're coming to evacuate the noncombatants."

The first stick of nearly 50 paratroopers landed precisely positioned around the control tower, their global positioning system guided chutes collapsing as they snapped off the harnesses and sped to the tower stairs. Another platoon of the 3rd Infantry BCT assault force secured the jet fuel tank farm. Other platoons seized entry points around the perimeter of the airfield while a whole company landed between the runways and taxiways with the mission of securing and clearing the runways. An Air Force combat control team that parachuted in with the first wave ordered taxiing jumbo jets to return to the terminal. Other brigade units reinforced the initial terminal assault force as they took out Anderian security teams with their directed energy weapons. It was absolutely crazy in the terminal, but so far, the only injured civilians were those trampled by the crowd.

In less than two hours, the 3rd BCT owned the airport. Minutes later, the first elements of a BCT airlanded in C-17s discharging a combined arms battalion of FSVs.

Ibn Ander screamed at General Dumai whose ashen features reflected his utter shock at the capture of the international airport. All communications with his subordinates were severed except for the intricate network of messengers they'd established to relay commands and reports. All reports were universally horrible. Somehow, coalition forces had jumped over his defenses, neutralized his anti-aircraft array, and landed practically on top of the capital. He expected to hear the shot that would end it all at any moment.

What Dumai and Ibn Ander didn't know was that coalition forces had seized the Port of Dumai, the general's home city, and that a U.S. Marine task force (TF) reinforced with an Army Stryker Brigade was leap-frogging toward Pekanbaru unopposed. They also didn't know that the British led amphibious force had cut Padang off from the north and south without having to fight through Anderian defenses. Meanwhile, a second BCT rushed toward the capital from the

southwest after insertion by Condor joint heavy lift aircraft. By dawn they would be in position south of Pekanbaru ready to begin a coordinated assault on the city with the Marine TF from the north.

This fictional account presents a very plausible picture of what might occur in future hotspots like Indonesia, an island nation with the largest Muslim population in the world. Future adversaries, inspired by earlier successes in failing or failed states, may well arise like Ibn Ander, filling voids and creating states within states with many of the modern trappings illicit funding can buy. In this story, the coalition reacts at the request of the legitimate GOI with a lightning fast joint forcible entry operation that rapidly overwhelms the Anderians. It demonstrates an aspect of full spectrum capabilities of the future joint force and the Army operational and functional concepts for 2015 to 2024. It also serves to validate the capabilities those concepts call for to meet the challenges of the future OE.

Required Capabilities

While accurately predicting a single future OE remains problematical, the U.S. military must maintain the ability to project trends into a range of realistic alternative future OEs.

The U.S. military must have the global situational awareness to identify emerging trends as they originate, track these trends as they develop, and detect changes as they occur. The military must increase its own capability to do so, but must be equally diligent in forging relationships with international friends and allies, domestic and multinational business and industry, international agencies, academia, law enforcement agencies, and the press, among others.

The U.S. military requires a single entity coordinating the national collection and analysis of the required information, from which various agencies can access a common data point to which they can then apply their unique perspectives and interpretations to meet their specific requirements.

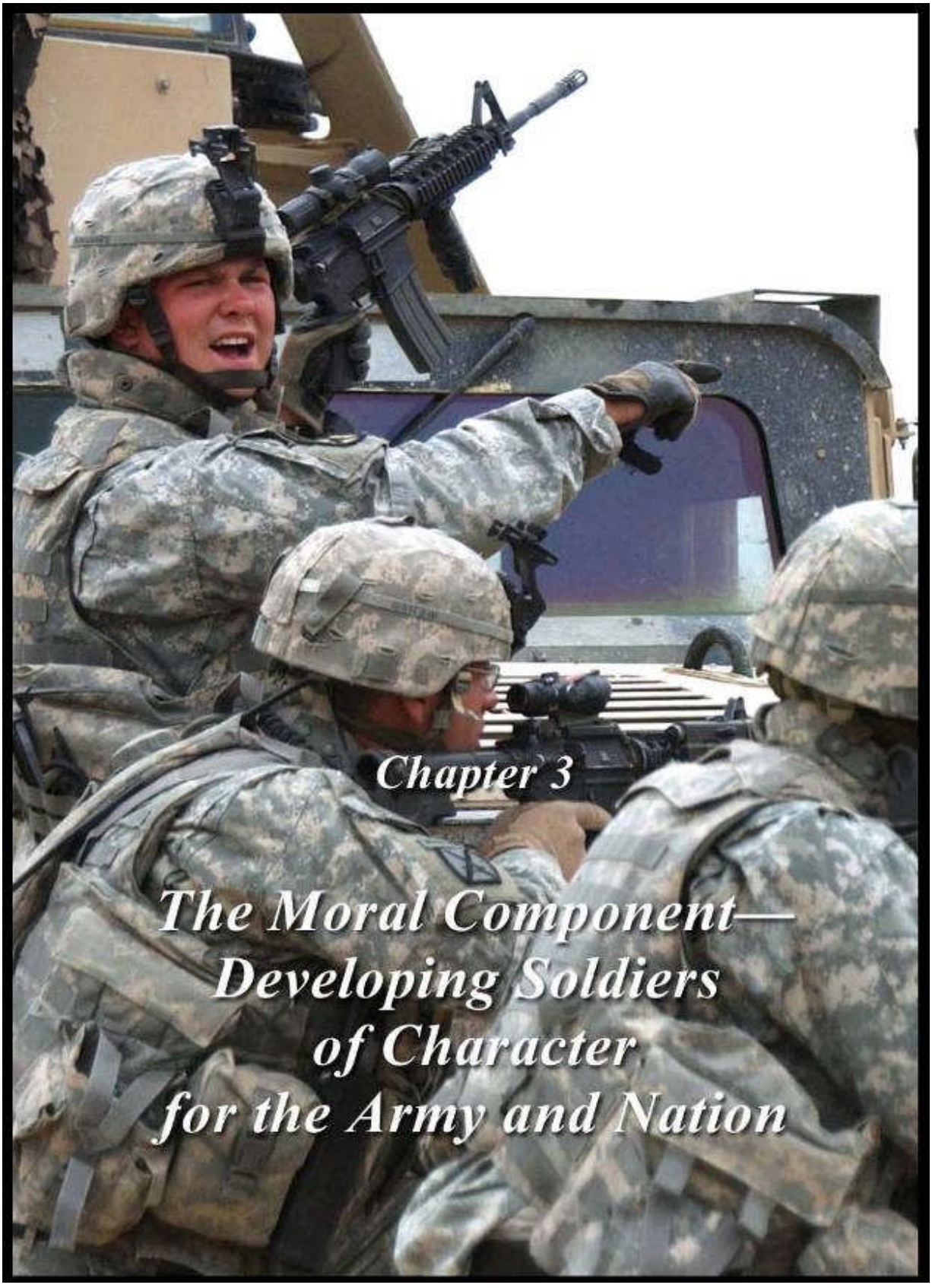
There must be an ability to store and rapidly analyze information. Advanced computing technologies must meet the challenge of rapidly sorting, tagging, and retrieving the information from a database and presenting it in a format usable by the human in the loop. Accurate analysis requires a capability to model the trends, predict their effect over time, and consider their interaction with other trends in near-infinite combinations. This is true in the arena of domestic trends as well as international and global trends. For example, the U.S. military will need an ability to collect accurate data for use in predictive modeling to determine which demographic groups are more likely to join and stay in the military.

In projecting the trends and examining the conditions of the future global OE, the military will refine its capability to anticipate conflict and an advanced modeling capability will help it to influence the trends early in hopes of shaping a future OE that avoids that conflict.

Questions for Further Examination

If a better understanding of the future global and domestic environments is a precondition for a successful national security strategy, then the Army must improve its ability to achieve this understanding. To this end, the following questions offer an opportunity for further study:

- Where does the responsibility for initiating and continuing a comprehensive examination of the future OE reside?
- Which Service or agency is best postured to coordinate an ongoing effort to focus national collection and analysis capabilities on understanding the future OE?
- Who should participate and who requires access?
- Does the Army need a new organization, agency, or community of interest, real or virtual?
- In what form should the Army present the products of future analysis?
- Will consumers have access to the data or only the analyzed and consolidated product? What restrictions due to security issues are acceptable?
- How does the Army structure information sharing policy and procedures?
- Other than our national intelligence entities, and local, state, and federal law enforcement agencies, who can and should contribute to the gathering, analysis, and interpretation of this information?
- Do our current policies and procedures allow us to gather and store relevant information about the domestic environment?
- How can the Army ensure that commanders and staff are skilled enough with behavioral and social sciences in order to plan and execute all phases of full spectrum operations?
- Is the Army legally able to do the analysis to develop an accurate understanding of the future domestic environment?
- How does the Nation’s potential adversaries—large global competitors, regional rivals, non-state extremist entities, and others—view the future OE?


Chapter 3
The Moral Component—
Developing Soldiers
of Character
for the Army and Nation

Even with the gifts of human understanding and of professional competence arising from careful training, our military leader will not be complete without character, character which reflects inner strength and justified confidence in oneself.

General Maxwell Taylor

Chapter 3
The Moral Component—Developing Soldiers of Character for the Army and Nation

3-1. Introduction

Of all the components of the human dimension, perhaps the most difficult to describe is the moral component. It is arguably the most important. It is rooted in character and from character comes behavior. Military character and a professional ethic form the bond of trust between the Army and the Nation. This bond when broken or distorted can and has had catastrophic consequences to the Nation. Incidents like My Lai and Abu Ghraib reveal poor character development in those who perpetrate such heinous actions and the leadership that fails to report or attempts to cover up the actions. These actions on both parts bring into question the quality of the profession, with grave impact on the Nation's reputation.

This chapter examines constituent elements of the moral component: The warrior spirit, its moral and ethical foundations, and socio-cultural awareness. This examination describes how this component relates to the physical and cognitive components and emphasizes the requirement for balance between all three to develop well-rounded holistically fit Soldiers for the future Modular Force. It aims squarely at preventing future military scandal, but more realistically, at taking those measures that will develop, reinforce, and sustain the bond of trust between the Army and the Nation.

The words *ethic,* and *moral* are not interchangeable in a military context. Both treat ideas and concepts of right and wrong, but they derive from different sources. The military ethic, for example, is a set of standards unique to the institution, however shared across other elements of society. Moral on the other hand—specifically moral behavior—derives from broader sources. What one human being owes to another and how the Army inculcates and reinforces this commitment is part of the career-long development process.

FM 1 discusses the profession of arms and what it means to be a professional Soldier. It establishes as guiding values the Soldier's Creed, the warrior ethos, and the Army values. Further, it admonishes Soldiers to live by those codes. While it is a chargeable offense to act outside the dictates of the laws mentioned above, the internalization of these codes establishes the soundness of Soldiers' characters enabling them to operate as trusted, free agents.

Regardless of how changes in technology or the strategic environment present new and different challenges to the Army, one enduring legacy remains; within the Army profession, only men and women of strong character can fulfill the obligations of service to the Nation and to fellow Soldiers.[55] Sound character reflects the internalization of a set of fundamental beliefs and values that guide a person through life. FM 1 outlines the values that the Army believes are essential to the professional performance of duty under the widely varying, but usually difficult conditions of military service. Character built on values and beliefs serves as a moral compass that helps individuals make sound moral judgments in the midst of chaos, ambiguity, fear, and violence. The oft-cited "strategic corporal"[56] whose actions can easily garner good or bad international attention magnifies this emphasis on character.

Character develops through learning and experience. While people may admire and attempt to emulate others, they cannot borrow the character and reputation of another individual. Every Soldier must carefully develop their own character, but this is neither automatic nor a clearly mapped out process individuals can easily follow. Consequently, Soldiers must learn to make good moral decisions through practice. When the correct moral course of action is unclear, a lifelong habit of doing the right thing in all areas of one's personal and professional lives may be the only guide. Well-developed character is the shield against the temptation to make immoral choices and decisions. The Army's obligation is to assist in this process in order to develop Soldiers who consistently represent the highest moral character in and out of uniform. It is Soldiers of character who create the foundation upon which good units are built; units that can be trusted to accomplish their assigned missions without sacrificing their honor or integrity.

FM 6-22, addresses character as essential to leader development, but the concept applies equally to all Soldiers. People join the Army with their character largely shaped by their background, values, beliefs, education, and life experience. While such primary socialization is powerful, becoming a person of character, and a leader of character, is a lifelong process involving experience, education, self-development, direction, coaching, and mentoring. Soldiers of character develop through continual study, reflection, experience, and feedback. When leaders hold themselves and subordinates to the highest standards, those standards and values then spread throughout the team, unit, or organization and ultimately throughout the Army.

> A man can be selfish, cowardly, disloyal, false, fleeting, perjured, and morally corrupt in a wide variety of other ways and still be outstandingly good in pursuits in which other imperatives bear than those upon the fighting man. He can be a superb creative artist, for example, or a scientist in the very top flight and still be a very bad man. What the bad man cannot do is be a good sailor, or Soldier, or airman. Military institutions thus form a repository of moral resource, which should always be a source of strength within the state.
>
> General Sir John Hackett
> "The Military in Service to the State,"
> p.119.

While doing the right thing is good, doing the right thing for the right reason and with the right goal is better. Men and women of character must possess the desire to act morally in all situations. One of the leader's primary responsibilities is to maintain an ethical climate that supports development of such character. When an organization's ethical climate supports moral behavior, people will, over time, think, feel, and act morally.

This examination of the human dimension divides developing the character of Soldiers is into three parts: First, encouraging the growth of a strong military character—building a warrior spirit; second, promoting consistent individual adherence to a strong moral-ethical foundation on which to ground military character; and, third, enhancing socio-cultural sensitivity to fit the requirements of an era of persistent conflict. Developed together these processes will result in a character founded on a robust professional military ethic. The warrior spirit sustains the will to fight and provides the necessary motivation to persevere in the face of hardship and the threat of injury or death in battle. Socio-cultural development requires Soldiers to understand instinctively, and be sensitive to the reality, that their actions have different meanings to different sections of the local and global audience; that these meanings translate to consequences for their personal success and the perception of

Americans by other nations of the world. This is particularly evident in the most senior and visible Army leaders who will continue to face extremely difficult situations in which their own sense of right and wrong may be in conflict with those of their civilian leaders or national policy. Accordingly, moral and ethical development requires integrity—aligning individual and professional values beliefs and behaviors so they become internally consistent with the ethical norms of the profession. The Army assists this alignment now and in the future through focused development programs throughout the lifecycle of the Soldier including concerted efforts to promote good judgment in morally ambiguous situations. This socialization process begins in inculcating a warrior spirit.

3-2. Developing the Warrior Spirit

General George C. Marshall stated the following:

> True, physical weapons are indispensable, but in the final analysis, it is the human spirit, the spiritual balance. . . that wins the victory. It is not enough to fight. . . It is the spirit we bring to the fight that decides the issue. The Soldier's heart, the Soldier's spirit, the Soldier's soul are everything. Unless the Soldier's soul sustains him, he cannot be relied on and will fail himself, his commander, and his country in the end.[57]

The warrior ethos alerts Soldiers to the hardest of all military truths—the mission is supreme. Fear will be ever present, but will never be an excuse for abandoning the mission. In like manner, it is now a cardinal principal that a Soldier will never abandon a comrade. Both of these tenets demand a moral choice by the Soldier to subordinate self even at the risk of death. The outcome of future combat will remain determined largely by the combatant possessing the superior will or spirit to win. For the U.S. Army, that spirit is reflected in the warrior ethos: *I will always place the mission first, I will never accept defeat, I will never quit, I will never leave a fallen comrade.*

The Warrior Ethos serves as the foundation for the Army's heritage and values and remains an essential component of the Soldier's character as written in FM 6-22:

> The Warrior Ethos is more than persevering in war. It fuels the fire to fight through any demanding conditions—no matter the time or effort required. It is one thing to make a snap decision to risk one's life for a brief period. It is quite another to sustain the will to win when the situation looks hopeless and shows no indication of getting better, when being away from home and family is already a profound hardship. . . . Pursuing victory over extended periods with multiple deployments requires this deep moral courage, one that focuses on the mission. . . Developed through discipline, commitment to the Army Values, and knowledge of the Army's proud heritage, the Warrior Ethos makes clear that military service is much more than just another job. It is about the warrior's total commitment. It is the Soldiers' absolute faith in themselves and their comrades. . . . The Warrior Ethos forges victory from the chaos of battle. It fortifies all leaders and their people to overcome fear, hunger, deprivation, and fatigue.

The Army believes that land operations in the future will be more complex than in the past. The preeminent role in battle played by competent Soldiers motivated by the warrior spirit naturally leads to the Army's collective view of itself as the most human-centered service, often demanding the most sacrifice from its members. Against the requirements of modern land combat, the most human of instincts are self-interest and self-preservation. The concept of selfless service to the Nation and fellow Soldiers, with the concomitant obligation and willingness to sacrifice one's self on their behalf, is not an innate belief or virtue.

The warrior ethos represents shared expectations rather than goals, and requirements rather than objectives. While U.S. participation in recent wars reveals the great depth of America's respect and affection for the sacrifices of its military, the warrior ethos concisely expresses the expectations of Soldiers by the Nation and by other Soldiers. The warrior spirit is the Soldier's personal motivation to live up to the warrior ethos. The warrior must be a confident self-reliant human being. The military manifestation of the human spirit involves conscious cultivation of individual and unit morale, cohesion, esprit de corps and will to persevere against superior numbers to achieve victory. The warrior spirit is an extension of the human spirit.

The Human Spirit

What qualities of the human spirit support the development of the fighting or warrior spirit? This concept examines the human spirit to see if it has value in strengthening health and resilience. Any discussion of the human spirit inevitably turns to religion and religious beliefs, an important and powerful influence in American society. Without diminishing any faith or religious practice, this study posits that all things of the spirit do not necessarily need to be religious. A general framework for developing the human spirit includes the requirement for self-reflection and self-awareness, and individual assumption of responsibility for developing a broad concept of a meaningful life, faith, and social awareness. These interrelated components facilitate the development of a *worldview*—the foundation upon which development of the human spirit rests. Always evolving, a person's worldview influences every aspect of a person's life. It is the individual's life philosophy, used to make meaning out of diverse experiences and provide direction and purpose. This complex cognitive process determines an individual's priorities, the experiences one seeks, and the interpretation of those experiences and behavior. An individual's worldview also contains the collection of knowledge and assumptions about how the world functions and where one fits in it; a process for determining truth, meaning, values, and beliefs; a vision guiding how to live life; and answers to questions on mortality and what follows.

> Wars may be fought with weapons, but they are won by men. It is the spirit of the men who follow and the man who leads that gain the victory.
>
> General George S. Patton
> *Cavalry Journal*, 1933

The traditional understanding of the human spirit is that it is a life sustaining force that in Soldiers translates to a strong indomitable will to win that refuses to accept defeat in the face of the unspeakable horrors and hardships of combat. It is this spirit, indicative of pride and self-confidence, that calls Soldiers to risk their own safety and possibly to sacrifice their lives for their Nation and their fellow Soldiers. This strength of will must also steel Soldiers to endure the mind numbing grind of repetitive deployments and the threat of adverse psychological impacts in a

future environment of continuous engagement. Coping with the stress of prolonged deployments into combat, Soldiers and family members indicate that religion remains an important source of morale, unit well-being, and marriage stability.[58]

The basic instinct for survival conflicts with the spirit that characterizes the Warrior Ethos. Such conflict is the challenge the Army faces in developing Soldiers motivated toward selfless service and the willingness to sacrifice. The Army has long recognized the human desire to be a member of a highly respected organization sustained by a higher purpose, seeking connection with others of similar interest as an important motivation for potential recruits to join the Army. There is little evidence that would suggest this normal human desire will change in the future. While initial training in basic military skills provides the medium to cultivate the warrior spirit and the essential bonds of camaraderie, it is total immersion in the distinct culture of the Army that establishes the initial foundations for personal and professional identity with what it means to be a Soldier. The Army places great emphasis on its proud heritage, discipline, the wear and appearance of uniforms, customs of the service, values, and teamwork to build *esprit de corps* and cohesive teams and units.

> More than any other single factor of combat readiness it is the way Soldiers feel about themselves, their fellow Soldiers and their outfit that is most likely to carry the battle.
>
> General Creighton W. Abrams
> Army Chief of Staff, 1972-1974

It is also through social connections with other Soldiers, the acquisition of professional expertise and combat survival techniques that Soldiers establish the necessary support network, the personal identity, and growing self-confidence that militaries have referred to as morale. Morale is another intangible like spirit. It is more a state of mind. High morale helps Soldiers and their units cope with the fear and stress of combat. Similarly, Soldiers' growing feelings of esteem also contribute to developing the warrior spirit. Regardless of the source of spiritual strength and inspiration, Soldiers with strong indomitable fighting spirit endure the hardships of war and persevere to accomplish their combat missions.

Character defines a person. What the person stands for determines behavior and provides the courage and will to act in accordance with beliefs and values. From the military perspective, the Soldier's character sustains the warrior spirit and provides the physical courage to fight in the often ambiguous and chaotic conditions of major combat or asymmetric operations, and the moral courage to act in accordance with, and to enforce, the profession's values and ethics. A strong sense of character provides both an anchor and a moral compass providing stability and direction when faced with moral decisions.

Normally, the struggle to discover their one's identity and character and to establish oneself as an independent and unique individual begins with adolescence. It is a time of confusion and anxiety as well as optimism and hope, as young individuals attempt to be unique while also trying to fit in. Therefore, the years immediately after high school or during college—precisely the time young Soldiers enter the Army—are critical periods in which to establish coherent and evolving world-views. The foundation established at home may be incomplete or insufficiently strong to withstand the demands of military life or the shock of battle. Given such disparities, the

Army must tailor initial entry training (IET). This challenge will only grow in the future if the recruiting pool dwindles.

All leaders must understand, interpret, and communicate meaning to their followers to provide purpose, commitment, motivation, and direction—whether to a few immediate subordinates or to larger teams and units. Any diminishment of shared values of the incoming recruits with their leadership only exacerbates the challenge of inculcating baseline beliefs.

Self-awareness or self-reflection enables individuals to know themselves and better understand others. Self-awareness is especially critical to leaders at all levels. Before leaders can provide values-based leadership to subordinates or motivate and inspire others, they must know who they are, what their core values are, and understand their self-concept as a leader. The complex contingencies the Army is likely to encounter in 2015-2024 will challenge a leader's self-concept and severely strain his or her values, beliefs, and needs, especially in combat.[59] The self-aware leader is also more resilient, possessing greater "hardiness" that both protects against and recovers more quickly from the trauma and ill effects of combat stress. In the priorities and policies they establish, the advice and counsel they offer, and the example they provide, good, self aware, and hardy leaders assist subordinates in making sense of their own combat experiences; building commitment and improving Soldier adjustment and performance under stress.[60]

Ownership provides a measure of independence to chart an independent course, seek out experiences and activities that broaden one's worldview, balance goals with the expectations of society, and strengthen one's human spirit. Freedom of thought and action are essential to growth. For Soldiers this search for an independent path may appear to be incompatible with the demands of military service with its emphasis on discipline, teamwork, selfless service, and professional standards of conduct. Individual growth results from the process of addressing the tension created between individual desires and professional responsibilities. Being able to recognize certain boundaries within which an individual can exercise judgment and independent action grows with experience and maturity enabling Soldiers to practice and appreciate discipline both as individuals and as members of groups without stifling the initiative future concepts encourage.

However, the young men and women who join the all volunteer Army in the future will undoubtedly ask themselves "…what's in it for me? Why should I enter the Army? How will service in the military lead to a meaningful life for me?" They may not yet be psychologically equipped to engage effectively in self-reflection or choose a path that is best for them. Leaders must be prepared to assist Soldiers through mentoring, helping them to interpret their experiences, directing them to other resources that may assist their search for meaning always taking care not to promote one path of spiritual development over another. This is especially

important in combat operations where Soldiers face fear, chaos, violence, and the loss of fellow comrades.

Faith is the strong belief in what constitutes ultimate truth; it is an allegiance to duty, a person, or something for which there is no proof of material existence. Faith requires trust and it provides both direction and will to persist in the face of the life's challenges. For many Soldiers their faith is grounded primarily in one of the world's religions—a personal choice. Not everyone finds faith through religion, but most people develop some level of faith in a person, philosophy, or institution. When Soldiers first enter the Army, they are frequently still searching for or confirming the source of their faith. Without faith in someone, a belief, a cause, or something greater than themselves, there is little motivation to grow and develop. Such faith provides the conviction that living by one's own values and principles; striving to develop one's full potential by seeking out new knowledge and experiences; reflecting on those experiences; developing positive relationships with others; and respecting others should contribute to a rich and fulfilling life.

Taking life and risking loss of life and limb is the ultimate demand a nation asks of its Soldiers. American Soldiers have done both for generations with strong faith that this nation and its causes are worth such sacrifice. Service to the nation alone is seldom compelling enough to build and sustain such faith. Indeed, it is more often a commitment to fellow Soldiers that encourages a Soldier to risk everything. The Army's challenge is to determine how to encourage and support development of the human spirit of Soldiers across the framework of self-reflection and awareness, individual responsibility for spiritual development, faith, and socio-cultural awareness.

The Army must guide and prepare commissioned and noncommissioned leaders in their efforts to develop the human spirit. Leaders must know how to advise subordinates and when to seek spiritual or behavioral health assistance. The Army must develop and implement similar instruction for IET cadre and recruits, synchronized with Noncommissioned Officer Education System (NCOES) and the Officer Education System (OES) so that Army leaders know how to develop Soldiers' characters both through training and by example. Army chaplains will continue to play a critical role in building Soldier and family resilience through pastoral care and counseling while protecting the Constitutional right of free exercise of religion.

Operating in an environment of persistent conflict in the period 2015-2024 will require Soldiers with an unassailable inner strength upon which to build a fighting spirit. Sustaining this spirit depends on building and maintaining individual morale, which in turn serves as a critical component of unit cohesion. Together, leaders and chaplains are the primary spiritual support that the Army provides to harden Soldiers against the effects of combat stress.

Building the Military Character: Combat Motivation, Morale, Esprit de Corps, and Cohesion

Few subjects within the human dimension garner more discussion and commentary on the nature of war than the treatment of morale, cohesion, esprit de corps, and combat motivation—the will to fight. Developing combat motivation is the struggle to overcome fear and to demonstrate courage. This is not the courage associated with heroic acts of valor. It is the

courage required of each Soldier to face the mentally, emotionally, and physically draining nature of war, danger, isolation, ambiguity, boredom, fatigue, and loss within a lethal high OPTEMPO environment.

Great captains and military theorists have commented on these subjects for hundreds of years. As early as 400 before the Common Era—Xenophon wrote in his timeless campaign narrative *Anabasis*, "I am sure that not numbers or strength brings victory in war, but whichever army goes into battle stronger in soul; their enemies generally cannot withstand them." Similarly, Napoleon's maxim that in war the moral is to the material as three is to one, supports the ascendancy of moral factors in battle. Clausewitz includes important observations on war's moral forces in *On War*.

> …moral elements are among the most important in war. They constitute the spirit that permeates war as a whole, and at an early stage they establish a close affinity with the will that moves and leads the whole mass of force, practically merging with it, since the will is itself a moral quantity. . . . The spirit and other moral qualities of an army, a general or a government, the temper of the population of the theater of war, the oral effects of victory or defeat-all these vary greatly. They can moreover influence our objective and situation in very different ways. Consequently . . . they can no more be omitted from the theory of the art of war than can any of the other components of war. To repeat, it is paltry philosophy if in the old-fashioned way one lays down rules and principles in total disregard of moral values. . . . One might say that the physical [factors] seem little more than the wooden hilt, while the moral factors are the precious metal, the real weapon, the finely honed blade. History provides the strongest proof of the importance of moral factors and their often incredible effect: this is the noblest and most solid nourishment that the mind of a general may draw from a study of the past.[61]

Morale

Morale is a Soldier's level of motivation, commitment, and enthusiasm for accomplishing unit mission objective under stressful conditions.[62] Morale is an individual attribute within the context of the unit and generally consists of many broad components including common purpose, commitment to the unit's identity, confidence, enthusiasm, and persistence within a military framework. High morale is a characteristic of effective units. Morale is an intangible, dynamic characteristic that strengthens confidence in oneself, one's equipment, the unit, and the unit's leadership. Morale rests on an intrinsic belief in the cohesiveness of the unit and purpose of the mission while recognizing that completing the mission requires self-sacrifice at many levels.

Morale is more complex than simple job satisfaction. It a sense that service is meaningful, important and makes a difference. Feeling the respect of others in the form of praise, promotions, awards, and the appreciation of superiors, peers and subordinates, alike, enhances self esteem and sense of worth to others. It is this value to others, and commitment not to let others down, especially in times of danger and crisis, which forms the foundation of the warrior spirit. This external esteem translates to pride in oneself and the unit, which together promote cohesion and a collective sense of purpose shared with other unit members.[63]

The key issue of importance is the contribution of the Soldier's morale to his motivation both to serve in the military and more importantly to fight or to participate in other contingency operations, and to building cohesive units. In other armies, the concept of morale is so important that it is included in their list of war principles. Morale is vulnerable to rapid changes and therefore must be nurtured and protected.

Surprisingly, authors wrote little on morale until the 1980's. An exception is John Baynes' classic account of the 2nd Scottish Rifles in World War I. Baynes concluded that morale was the single most important factor in war and asserted that:

> High morale is the most important quality of a soldier. It is a quality of mind and spirit which combines courage, self discipline, and endurance. It . . . is easily recognizable. In time of peace good morale is developed by sound training and the fostering of esprit de corps. In time of war it manifests itself in the soldier's absolute determination to do his duty to the best of his ability under any circumstances. At its peak, it is seen as an individual's readiness to accept his fate willingly even to the point of death, and to refuse all roads that lead to safety at the price of conscience.[64]

The description above has historical resonance. In his classic work *Defeat into Victory*, Field Marshall William Slim who commanded British forces in Burma during World War II, defined morale in similar terms, "morale is a state of mind. It is that intangible force which will move a whole group of men to give their last ounce to achieve something, without counting the cost to them; that makes them feel they are part of something greater than themselves."[65] Tasked with rebuilding a broken army and defeating the Japanese in the theater of war with arguably the lowest priority and greatest terrain and weather obstacles, Slim made the task of raising morale one of his top priorities.

The determinants of morale are difficult to measure. These determinants appear in elementary form in figure 3-1. They are both individual and group related, reflecting their interdependence with unit cohesion and esprit de corps. Collectively, these factors affect the Soldier's combat motivation and fighting spirit by instilling a sense of purpose, confidence, hope, and optimism. However, it is not a linear relationship of inputs equaling outputs as the figure implies. Because of their interdependency, each affects the other in shifting patterns of correlation between factors and other variables.[66]

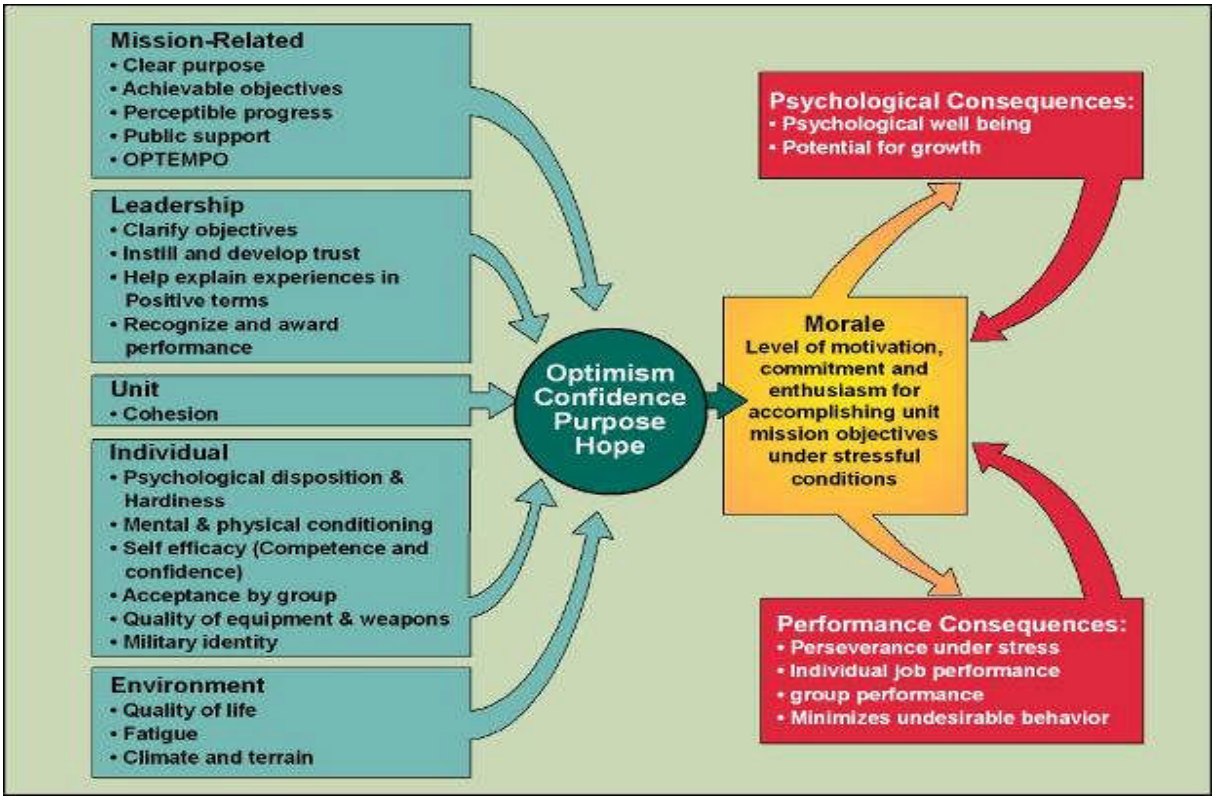


Figure 3-1. Determinants of Morale

Developed from studying the science of war, these factors support the conclusions reached by Slim, one of the preeminent practitioners of the art of war. He devoted significant discussion to his efforts to rebuild the morale of the 14th Army after it suffered a series of humiliating defeats by Japanese forces in Burma:

> So when I took command, I sat quietly down to work out this business of morale. I came to certain conclusions, based not on any theory I had studied, but on some experience and a good deal of hard thinking. It was on these conclusions that I set out to consciously raise the fighting spirit of my Army. . . Their morale must—have certain foundations. These foundations are spiritual, intellectual, and material, and that is the order of their importance.[67]

Slim's spiritual factors include a noble and important purpose, achievable objectives, and the Soldier's belief that his efforts are important and essential to attaining the objective. Cognitive factors consist of competent caring leaders and well trained units while material factors include receiving the best weapons and equipment possible and quality living and working conditions.[68]

Colonel Frederick J. Manning, from the Army Research Institute (ARI), reached similar conclusions. He sorts these determinants of morale into individual and group factors. In addition to the physical elements of quality of life and fatigue, Manning's individual factors, like Slim's, include psychological needs. There is consensus between scientists, theorists, and practitioners on the factors that affect Soldier morale. The quality of the leadership, the nature of the conflict

and the disposition of the Soldier determines the relative impact of these factors on individual morale.

The characteristics and perceived legitimacy of the mission affects morale. Future operations characterized by ambiguity and uncertainty argue that the Army must carefully and deliberately address these mission factors with Soldiers before, during, and even after operations as an important determinant of Soldier and family morale. For example, many Soldiers, uninformed or unconvinced by their leaders, questioned the legitimacy of U.S. peacekeeping operations in the Balkans in the 1990s. They believed such operations were inconsistent with and undermined the Army's preferred competency to fight major combat operations.[69] Mission factors become especially important in operations when purpose, objectives, definitions of success, and duration change over time. Operation Uphold Democracy in Haiti is an example where the original objective of regime change turned into peacekeeping. Operation Iraqi Freedom (OIF) transitioned from the intended brief conventional campaign followed by a short transition to local control, into complex and violent protracted conflict. This change from conventional combat operations to a counterinsurgency (COIN) mission is what Army concepts project to be an aspect of future persistent conflict. The Soldier's readiness to destroy the enemies of the U.S. reflects a Warrior Ethos and mindset that tends to default to conventional operations. This may prove frustrating to Soldiers who must be prepared to adapt rapidly to shifting roles in COIN operations and the other smaller scale contingencies the U.S. is very likely to encounter in the future. Future persistent conflict, repeated deployments, and potential lack of public support can place additional strains on Soldier and Family morale.

The pace of military operations, OPTEMPO is yet another factor linked to the mission's purpose, objectives, and progress that affect Soldier morale.[70] In the current OE, frequent and repeated deployments to the same operational area, separated by short dwell times at home station, are the predominant reason Soldiers leave the service.[71] For many units, high internal OPTEMPO with packed training schedules and a race to integrate and train new Soldiers while developing cohesive units, mar the relaxation expected during time spent at home station. Forecasts for the future OE, characterized by diffuse, persistent, smaller scale, and complex contingencies, suggest this high OPTEMPO pattern will continue.

Environmental factors affect Soldier morale. Living conditions and rations concern Soldiers. Yet the effort to provide creature comforts must balance with maintaining fighting fitness and accomplishing the mission. American Soldiers have shown incredible endurance in the face of severe deprivation from Valley Forge to the searing heat of 130-degree deserts in Iraq. Individual factors largely independent of environmental and mission factors influence Soldier morale. A Soldier's hardiness together with confidence in their leaders, conditioning, training and equipment, and a commitment to their identity as Soldiers strengthens their disposition to approach the difficult experiences of serving in combat. The Army must continue to provide the best possible care and living conditions to the Soldier now and in the future, but never at the expense of the mission.

The key to building resiliency—holistic fitness—lies in achieving a balance between protective power of high morale, unit cohesion, and good mental and physical health. Physically and mentally fit individuals are better able to pursue a proactive life with a more developed sense

of purpose and understanding of their place in the world (worldview), greater control and work commitment, and openness to change and the challenges of life. Even in the harsh environment of combat, they can make meaning out of their experiences, see opportunities to grow and learn, and help others to do so as well. This contrasts with the person who feels powerless to affect both his current and future situation. Studies clearly demonstrate that Soldiers with high hardiness levels when exposed to combat maintain higher morale and greater resilience to traumatic stress.[72] Predictably, hardy holistically fit leaders perform more effectively and garner greater respect from their subordinates.

The components of high individual morale are trust in unit leaders, trust in fellow Soldiers, confidence in one's skills, weapons, and equipment, faith in the validity of the mission, and unit cohesiveness. Of these, unit cohesion and caring competent leadership remain the most important determinants of Soldier morale and combat motivation.

Esprit de Corps and Cohesion

If morale is the "human dimension's most intangible element," then unit cohesion and *esprit de corps* together form the organizational equivalent. While less tangible than weapons systems, *esprit de corps* can prove the old axiom of the whole being greater than the sum of its parts. Future adversaries might achieve this spirit in their cause or ideological fervor. Future Army concepts postulate widely dispersed units functioning effectively out of direct contact with each other. This will increase the value of cohesion as a combat multiplier. In a military context, cohesion is the bonding of Soldiers together in order to sustain the warrior spirit—their morale, will to fight and commitment to each other, the unit, and mission accomplishment in combat or under the stress of other smaller contingency missions.[73] Like morale, esprit de corps is a dynamic relationship whose strength is dependent on many factors, morale being one. Trust and teamwork created by sustained formal and informal interaction through good training, common experiences, shared identity, symbols, and values builds unit cohesion. Unit cohesion aids commanders in establishing the environment to anchor individual morale.

> My first wish would be that my military family and the whole Army should consider themselves as a band of brothers, willing and ready to die for one another.
>
> George Washington
> 21 OCT 1798
> Writing to Henry Knox

Esprit de corps results from the long term pride and confidence Soldiers have in belonging to their larger or higher unit and their determination not to diminish its reputation. Esprit de corps helps maintain and even increase a Soldiers motivation, resilience, and perseverance to accomplish assigned tasks and missions.[74]

In addition to esprit de corps, unit cohesion in the future Modular Force will help to extend the reach and coverage of units. Unit or "primary" cohesion has two components: horizontal, or "peer" bonding, and vertical, or "Soldier to leader," bonding. Sun Tzu addressed cohesion in *The Art of War* stating that, "he whose ranks are united in purpose will be victorious."[75] One of the first written accounts of the power of cohesion in units is the example of the heroic and inspirational stand of Leonidas and his 300 Spartans before the overwhelming numbers of

Xerxes' Army at Thermopylae in 480 before the Common Era. Defending to the last man, their example of cohesion inspired the other Greek city-states to unite, leading to their eventual victory over Persia.

Surprisingly, little discussion on building and maintaining unit cohesion appears in Army leadership or training doctrine. Military group cohesion develops beyond just primary groups at four interrelated levels: peer (horizontal), leader (vertical), organizational (battalion, regiment) and institutional (Army). Building cohesive units is important today because it contributes to building and maintaining morale, and because it enhances unit performance and reduces discipline problems. It will only become more valuable in the future as the Army faces challenges that are more complex.

The Brotherhood

I know why men who have been to war yearn to reunite. Not to tell stories or look at old pictures. Not to laugh or weep. Comrades gather because they long to be with the men who once acted at their best; men who suffered and sacrificed, who suffered and were stripped of their humanity.

I did not pick these men. They were delivered by fate and the military. But I know them in a way I know no other men. I have never given anyone such trust. They were willing to guard something more precious than my life. They would have carried my reputation, the memory of me. It was part of the bargain we all made, the reason we were so willing to die for one another. As long as I have memory, I will think of them all, every day. I am sure that when I leave this world, my last thought will be of my family and my comrades…such good men.

Author unknown

Horizontal or peer bonding involves building a sense of mutual trust between Soldiers in small units (platoon, squad, team) and among peer leaders (officers and NCOs) through shared experiences. It is about relationships based on direct personal interaction and social exchange between members. Factors that affect peer bonding include personnel stability, unit command climate, quality of training, teamwork, satisfying physical needs, clear and meaningful group missions, presence of a common enemy, a sense of accomplishment from successfully accomplished tasks and missions, and individual or group recognition for good performance. Given sufficient time and good leaders, small highly competent, tight-knit units develop standards and norms of principled behavior that guide the individual conduct of its members for the collective good. At the most elementary levels, Soldiers in small cohesive units develop interdependence on one another for basic survival that leads to personal loyalty and a commitment not to let one another down.

Cohesion is evident when individual goals and group goals coincide, when the first loyalty of each individual is to the group, when individuals resist leaving the group, and when individuals in the group act as a coordinated, collective whole and willingly accept the possibility of death to preserve the unit or accomplish the mission. Soldiers in cohesive units speak in terms of "we" rather than "I." Such bonds also support and sustain Soldiers against stresses they would otherwise be unable to withstand. In turn, retention is higher; both battle and non-battle casualties are lower.[76] Finally, some studies argue that within highly cohesive units, incidents of individual heroism are also higher.[77]

Research confirms that together with high morale, strong vertical cohesion is the most effective predictor of unit performance.[78] The single most important factor in cultivating bonds among Soldiers and between Soldiers and their leaders are caring, nurturing officers and NCOs who develop and empower their subordinates. Leaders who establish an open, collaborative command climate; provide for the physical welfare, psychological needs, and good training of their Soldiers; recognize their performance, and share their discomforts and danger in exercises and on operations manifest this sentiment. Studies repeatedly show that in company-sized units, when leaders showed interest in their Soldiers, understood their needs, helped them, recognized their abilities, backed them up, and treated them fairly, morale was higher, casualties lower, and the unit more likely to be cohesive and effective.[79] These elements of leadership have many complementary theoretical concepts such as "empowering," "servant," and "authentic." Each theory shares common features, trust, respect, and competence. This contrasts with the authoritarian style of leadership characterized by fear of personal failure, being too busy to engage subordinates, being unwilling to accept mistakes or advice, practicing initiative-crushing micromanagement, and reluctance to relinquish the illusion of complete control.

Secondary cohesion includes both organizational and institutional bonding. Organizational bonding occurs at the next higher organization—company or battalion, or regimental or brigade level, while institutional bonding is the relationship of the Soldier to the Army. Prior to deployment, units build organizational bonds by continuing the process of socialization begun in IET. Unit socialization includes learning about unit heritage, customs and traditions, distinctive uniforms and insignia, standards of appearance and conduct, ceremonies and unit activities that instill pride, unity of purpose and solidarity. During operations, secondary group leaders provide purpose by assigning and explaining missions and providing intent. Successful secondary cohesion is demonstrated by Soldiers whose performance is guided not only by the desire to avoid letting their comrades and leaders down, but also by their concern that their conduct and performance not tarnish the unit's or the Army's reputation.

Army personnel assignment and professional military education policies have an even greater impact upon primary and secondary group cohesion. From World War II up to the wars in Iraq and Afghanistan the Army essentially maintained an individual replacement policy. Most Soldiers served in many different units making it a difficult, yet routine requirement to transfer affiliation and loyalty to a new unit every two to three years. Professional military education often coincided with these breaks between stations. While this promises secondary cohesion, critics of the individual replacement policy cite its negative impact on primary group cohesion. This policy, as practiced where largely conscript Soldiers arrive individually in units and serve yearlong tours, is one of the primary reasons for the breakdown of morale and unit cohesion in the Army during the Vietnam War.

The future Modular Force composed of multifunctional BCTs may benefit from personnel stabilization policies that strengthen unit cohesion. Similarly, elite units, such as Rangers and special operations forces, develop strong bonds and reputations for perceived excellence and uniqueness. Indeed, all Army organizations strive to develop a special identity. This sense of unit identification can be a source that increases cohesion.

Societal

Societal cohesion consists of the Soldier's perception of the relationship between the Army and society. It is particularly important for an all-volunteer Army to remain connected to society. Army culture and values must be consistent with America's traditional values embodied in the constitution and the laws governing the Nation and the Army. Most would agree that some period of honorable uniformed service returns more responsible citizens to civilian life. Army service characterized by competence and integrity enforces the bond of trust between society and the Army. Similarly, when Soldiers believe society appreciates the sacrifices they make, pride becomes a motivating factor that enhances morale and cohesion and eases Soldier reintegration into society at the completion of their service. While not the primary factor in developing cohesive units, over time the support of the American people, or lack of it, can affect the motivation of Soldiers and their commitment to completing the mission. Shaping and maintaining this connection with society is the responsibility of leaders at all levels but especially the Army's senior leadership.

3-3. Moral and Ethical Development

Institutional and Professional Values and Principles

In light of the unconstrained methods employed by many of our current and future adversaries, critics argue that ethical considerations are meaningless and may even hurt the Army's ability to operate effectively.[80] However, a credible ethical culture is an essential foundation for unit effectiveness and combat power, to include institutional reliability. Ethical systems are components of culture that guide behavior and human interaction by defining the values and actions that are acceptable and unacceptable.

> When you put young people, eighteen, nineteen, or twenty years old, in a foreign country with weapons in their hands, sometimes terrible things happen that you wish never happened. This is a reality that stretches across time and across continents. It is a universal aspect of war, from the time of the ancient Greeks up to the present.
>
> Stephen E. Ambrose
> *Americans at War*

Maintaining a sense of good morale, esprit de corps, and cohesion in Soldiers requires a collective effort from initial socialization to on-going integration into units and extended service. Such efforts integrate the strong institutional and professional values that make up the moral-ethical content of Soldiers' development. They also involve efforts to sustain those values across the Soldier's period of service until they become ingrained characteristics. Experiences and individual understanding of those experiences must reinforce fundamental institutional and individual values. More importantly, the objective of moral development is the practice of the military and civic virtues and the internalized dispositions to live by those values all day, every day, professionally and in the Soldier's private life. This is what integrity is all about—aligning individual and professional values in such a way that beliefs and behaviors are internally consistent.

Military culture differs from that of the larger society. If Soldiers are to function in an environment of moral ambiguity and chaos, they are dependent on an ethical culture that enables them to persevere in accomplishing missions while protecting their sanity and character. The Army has the responsibility to develop Soldiers of character who adhere to enduring standards of conduct that are part of Army's heritage that can be and have been passed on from past to future generations of Soldiers. The Army instills in its members a deep commitment to these professional values as nonnegotiable conditions of membership. Americans trust their Army largely because of its collective adherence to these professional values.

Perhaps more than ever before, Soldiers participating in future operations must have a well developed moral compass to navigate the increasingly ambiguous and complex situations they will encounter. It will not always be clear what threat they face or who the enemy is. These situations will often present morally laden dilemmas with no clear solutions that require immediate responses. If Soldiers are to have the moral resources necessary to make good decisions, they need to approach life and their role in the Army with a strong, well grounded moral and ethical foundation.

Inculcation of values and virtues involves more than training or education to establish cognitive understanding. It is more than simply following the rules. Rigid codes are not useful if they are not sufficiently adaptable to support Soldiers in ambiguous situations. Simply following rules or performing required duties will not ensure avoidance of moral dilemmas. Well developed virtues rather than fear of punishment must guide Soldier conduct. More importantly, in the complex, dynamic, ambiguous, and lethal environment of the future, there is great potential to do harm, or commit criminal acts, and there is often insufficient time to apply rules self-consciously, or calculate the consequences of wrongdoing. Therefore, soldierly conduct must involve the practice of values and virtues until doing the right thing becomes a habit. Habitual virtuous conduct takes on the qualities of duty; an obligation willingly accepted and performed at the right times and for the right reasons.[81]

A key factor affecting Soldier internalization of values and virtues requires modeling by respected leaders and the creation of an environment of consistent expectations. It requires encouragement and reinforcement, both to practice the professional virtues and to model the military virtues to others. The desired result is Soldiers adopting and living as an individual self-

identity as virtuous warriors who experience personal disappointment at failure as part of the wider process of self-actualization addressed earlier.

Moral soundness is the essence of integrity. It is defined here as wholeness, especially honesty. Moral soundness is also a developed sense of individual responsibility for one's actions and inactions, a dedication to others before self, an inspired or deeply held warrior's ethos, a high sense of self-discipline, and a personal propensity to do what is required or to refrain from doing the forbidden, in all circumstances, regardless of personal cost. It requires the capability for moral sensitivity and reasoning. Courageous, competent, morally sound Soldiers form cohesive and competent units.

Building Morally Sound Soldiers—a Framework for Moral Development[82]

Character and moral soundness requires development of moral reasoning abilities with the instinct and fortitude for moral action. The Army expects and requires moral reasoning consistent with the moral principles that shape the American professional military ethic. These principles include the moral imperative to be competent in conducting operations, and faithful in observance of the laws of war and responsibilities to the values of American society.[83] The moral landscape in future full spectrum operations may be more challenging when battling asymmetric enemies unconstrained by accepted convention. While there are obviously no set formulas, moral reasoning will involve the process of recognition, judgment, intention, and behavior. Soldiers must be able to *recognize* the moral implications in a given situation, reason through the situation to form a moral *judgment*, develop the *intent* to act, and finally, summon the courage and conviction to carry through with the intended *behavior*. A breakdown or inability to carry through with any one of these steps can result in inaction or the wrong action.

> For war is the hardest place: if comprehensive and consistent moral judgments are possible there, they are possible everywhere.
>
> Michael Walzer
> *Just and Unjust Wars*

The ability to interpret and learn from moral experiences is essential to prepare for the complexity of the future operating environment. Through training, education and life experiences, Soldiers broaden their understanding of moral issues, learn to process, and expand their knowledge when facing situations that contain new and complex moral issues or dilemmas. Exposure to different moral conflicts helps improve moral reasoning by providing opposing views and arguments that challenge core beliefs and basic assumptions.

Leaders may also improve moral development of their subordinates by establishing a climate that requires and supports moral behavior. By deliberately integrating ambiguous moral situations into training, the Army can help Soldiers to develop their understanding of moral issues. Leaders also serve as moral exemplars by their conduct and assist Soldiers to make sense of the moral issues they encounter and thereby improve their moral decisionmaking skills.

Simply reasoning through complex moral dilemmas is insufficient by itself. Soldiers must take action. This requires development of the sense of individual responsibility and the motivation to do the right thing, always. This means taking personal responsibility not only for

one's own moral conduct and but also refusing to tolerate immoral acts in fellow Soldiers or leaders. It is especially critical for leaders to set the moral climate within their units. Soldiers cannot remain passive when they determine that an immoral act has occurred or is going to occur. This includes the ability to foresee the logical consequences one's actions and the actions of others.

The Army must develop Soldiers who have the autonomy and capacity to challenge unethical decisions and address ethical dilemmas regardless of the will of their subordinates, peers, or superiors. When making moral judgments in complex situations followers normally defer to the higher authority. Disengagement from the responsibility to act explains why subordinates serving under immoral leaders did not intervene to prevent the My Lai massacre in Vietnam and the Abu Ghraib abuses in Iraq. It is through moral disengagement that people find excuses for not doing the right thing, often rationalizing that it is not their responsibility ("I was following orders" or "everyone else is doing it"), and an almost natural tendency to dehumanize the enemy or local populace through racial slurs or other derogatory terms. Soldiers do not have the option to recognize moral wrongdoing and then fail to take action. Soldiers with well developed sense of moral agency are better able to recognize the moral implications present in a situation, determine the right thing to do, take responsibility, and summon the courage to do the right thing.

Having the confidence, courage, and resilience to act when faced with a moral dilemma requires moral strength to overcome strong social or command pressures, to "choose the harder right instead of the easier wrong, and never be content with the half truth when the whole can be won."[84] Sometimes doing what is right results in threats, ostracism, and alienation from fellow Soldiers and leaders. To face such pressure requires moral confidence and courage.

Moral confidence comes from the belief that one has the capability to act successfully in the face of a moral dilemma. It also includes the ability to intervene effectively, using strong interpersonal skills to communicate the dilemma to others and overcome any potential resistance to doing the right thing. These skills develop through frequent and deliberate exposure in training to complex and realistic moral dilemmas followed by open discussion *in advance* of deployment. As Soldiers increase their experience through these situational exercises they refine their judgment, which further builds self-confidence. Once deployed, when Soldiers experience actual moral dilemmas, leaders must continue discussing the circumstances, decisions, and outcomes in order to help Soldiers make sense of their experiences, improve moral reasoning skills, and build confidence. Over time these experiences transform Soldiers into confident moral individuals better able recognize and make judgments on complex moral issues, who possess the confidence and personal moral courage to act in difficult circumstances.

The attributes of moral confidence and individual moral courage can thrive only in organizations with a strong leadership climate supportive of subordinates' moral development. Soldiers should learn to challenge ethical decisions or report immoral or illegal acts without fear of retribution. Those who report such acts should be recognized, rewarded, and celebrated by the unit. The impact of such an environment on Soldier morale and psychological resilience as well as unit cohesion is self-evident.

The moral development of Soldiers is a complex subject. The rules of engagement carefully established for every operation still cannot foresee all the situations that Soldiers and their leaders will face. The moral dilemma's faced by Soldiers in future full spectrum operations are like those Soldiers have always faced in battle; morally ambiguous situations where there appears to be no clear solution. In order for the Army to be a moral organization, it is essential for Soldiers to understand the moral reasoning process, moral recognition, moral judgment, moral intent, and moral behavior. More than understanding, Soldiers must repetitively exercise their moral judgment while making decisions and taking actions consistent with professional military values. To navigate through this process with confidence and courage requires developing early and continuously in Soldiers the three key capabilities of dealing with moral complexity, accepting moral agency and achieving moral efficacy. This triad of capabilities is the foundation of moral development.

The Army must provide for the strong ethical grounding of its members and particularly its leaders. A check-the-block program of annual briefings, or en mass generic character guidance sessions, is not adequate. Every transformational experience or "trigger point" in individual development must have ethical content integrated to insure attachment of its proper meaning (understanding) and internalization of principals by the subject.[85] In line units, ethical leadership is a chain of command function. Institutionally, at every level of formal individual development, units must allocate time and resources in proportion to the institutional costs of individual and collective ethical failure. Though in ethical terms such failures have always borne their costs, in this period of instant global visibility ethical lapses can have extraordinary strategic costs to mission accomplishment and America's reputation.

3-4. Developing Socio-cultural Awareness

In 1969, British historian, Sir Michael Howard, pointed out that modern armed conflicts (post World War II) were "not simply military conflicts with a complex political background; they are rather political conflicts which involve an unusually high level of violence"[86] Howard wrote principally of post-colonial wars, where developed industrial powers (including the U.S. and Soviet Union) sought either to extend collapsing colonial mandates or influence the character of successor governments as they, an ally, or a rival power, withdrew.

Today's "Wars amongst the peoples,"[87] as General Sir Rupert Smith has characterized interventions into areas lacking effective civil powers, share with the conflicts Howard characterized the fundamental fact that foreign military forces employ for political purposes. In the case of post-modern conflicts, those political purposes often have the aim of producing sufficient local public stability and support to permit building or rebuilding a reasonably responsible civil society. This can require operations against other dedicated foreign fighters who claim to share common values with the host society, hostile factions within the host society contending for power within the wider emerging or declining political structure, or a shifting combination of both. After Vietnam, the U.S. and the Army avoided accepting nation building as a core mission. American military culture and Army mantra and doctrinal preference goes to closing with and destroying the enemy in decisive battle. However, most conflicts since 1945 have been at the lower end of the spectrum. These kinds of interventions will likely continue to dominate military activities in future full spectrum operations.

Americans normally recoil at employing draconian violence to impose our will on a disaffected people. American forces will require at least the toleration if not the full support of the local population to defeat hostile insurgent forces. Negotiation, as well as coercion and command, are essential skills for the types of conflict that will continue to dominate the future. To win the cooperation, compliance, and support of a foreign people as well as that of the American people, American Soldiers must understand the culture and their actual, often unintended, effects on the local population. However, the Army may only be able to provide rudimentary cultural orientations to deploying units. This places the burden on senior leaders and specialists, such as foreign area officers, to guide and direct cultural interaction.

Thus, an essential element of the human dimension will be a developed understanding and respect for the importance of *culture*, something anthropologist Clifford Geertz has referred to as "webs of meaning they [all societies] themselves have spun."[88] Culture is the collective sum of the subjective worldview everyone forms around him or herself. Shared worldviews, and particularly common values and expectations, separate groups and thereby define communities.[89] Developing such an understanding will require an increased emphasis on language training and proficiency, the acquisition of which increases socio-cultural awareness.

As important as the physical terrain, in future full spectrum operations, commanders require the capability to understand and address the "human terrain," of social, cultural, historical, political, economic, and population and urban geography of the area of operations (AO). Culture is common beliefs, values, and attitudes, which together define collective and individual identity. Culture determines meaning assigned to particular events. It helps define, what behaviors are acceptable, and unacceptable as well behaviors to avoid.

> Cultural awareness will not necessarily always enable us to predict what the enemy and noncombatants will do, but it will help us better understand what motivates them, what is important to the host nation in which we serve, and how we can either elicit the support of the population or at least diminish their support and aid to the enemy.
>
> Major General Benjamin C. Freakley Commanding General, CJTF-76 Afghanistan, 2006

The Army conducts operations in a joint, multinational, and interagency environment today. Army leaders increasingly confront the need to negotiate and coordinate operations with other interested parties. These negotiations are complex, multi-party, multi-issue, cross-cultural, repetitive, and frequently relationship-based. The stakes are enormous. FM 3-24 and Marine Corps Warfighting Publication 3-33.5, lists six institutional groups whose integrated collaboration is essential for successful COIN but could apply equally to other operations. They include U.S. government agencies other than DOD; other nation's defense and non-defense agencies and ministries; international government organizations, such as the UN and its subordinate organizations; nongovernmental organizations; private corporations, including contractors; and, other organizations that wield diplomatic, informational, and economic power.

Each represents unique cultures, all of which the Army must understand, and, to some extent accommodate, to achieve effective collaboration. This characteristic of current operations will only expand and gain more importance as America remains engaged in persistent conflict.

Army Culture

Armies have cultures that influence their members' worldview. These beliefs arise from the nature of the military function; the nature of the government and parent society; and from history and traditions. How an Army thinks about itself affects its ability to adapt to new requirements.

In November 2005, DOD Directive Number 3000.05 acknowledged new realities and elevated stability operations to the status of a core U.S. military mission, requiring that, "They shall be given priority comparable to combat operations and be explicitly addressed and integrated across all DOD activities including DOTMLPF, and planning." Observing that civilians perform many tasks associated with stability operations, the directive went on to direct: "Nonetheless, U.S. military forces shall be prepared to perform all tasks necessary to establish or maintain order when civilians cannot do so."

By 2005, the realities of Afghanistan and Iraq combined to initiate change in Army's perception of its role. What remains is to reframe the institutional identity so that it is more consistent with the experience of the current generation of Army leaders, while avoiding the pitfall of forgetting that conducting major combat operations remains a core capability the Army cannot abandon in order to focus exclusively on COIN operations. This trend requires an Army culture that develops, sustains, and rewards self-aware, adaptable leaders and formations, capable of making seamless transitions from one mode of conflict to another. This cultural change will serve as the catalyst to revise doctrine, organizations, training, leader education, material development, and Soldier recruitment.

Culture of Other Governmental Agencies and Contractors

As the joint warfare culture continues to grow, in the future, the gap between service cultures might shrink, but competition for resources will remain a challenge should specialization differences between the services increase. Soldiers deployed to conflicts in future operations will have to understand and be sensitive to cultural differences between the Army and other military Services, and the military and other government agencies. Increasingly, more non-DOD government agencies expect to have representatives in or near the AO. Representatives of non-DOD executive departments provide a very large share of the expertise and capability to help failed states gain their footing and provide necessary services and functions to the local population.

Regardless of which department or agency has the lead in future operations, the military will have a significant role. For this reason Army leaders must learn the capabilities, expectations and world view of executive department civilian employees from outside the DOD to insure that unity of effort results even where unity of command may not exist. This requires an acceptance of the priority of task over ego; negotiation over direction; and a willingness to capitalize on skills, such as detailed planning, which military professionals possess. Leaders who expect and accept cultural difference as an opportunity will prosper in such collaboration.

Future operations are still going to involve large numbers of contract personnel performing support functions. The Army relies on dedicated contract personnel; yet, institutionally the Services, the Congress, and the Nation must come to terms with where contractors fit within the joint team, particularly during conflicts. Contractors can be perceived as outsiders whose first obligation is to their company, but the fact is that their first obligation is to the client—often the Army. They may lack formal status and authority. Contractors may have a different reward system from the uniformed members who depend on their skills. As more and more positions and functions are outsourced, Army civilians can see contractors as a threat to their continued professional career status. Often contractors supporting the military come from a military background, thus sharing some of the culture and values of their serving brethren. In the future finding ways to assimilate contractors whether in combat or normal operations will pay great dividends.

Culture of Allies and Co-belligerents

In his 1952 Kermit Roosevelt Lecture at the U.S. Army Command and General Staff College, Field Marshall Sir William Slim observed the only thing worse than having allies, was not having allies. Alliances can be formal as they were in World Wars I and II. Alternatively, they can be informal as in Desert Storm, Operation Enduring Freedom (OEF), and OIF. Whatever the form, allies come with their own values, traditions, capabilities, limitations, and often requirements. They can incorporate into the scheme of operations or not. Still Slim's point remains valid. The only thing worse than having them there, is being alone, without them.

Smooth integration of allied units and individuals requires not only good will on both sides, but also a lot of preplanning. Operationally the rule is generally to design a role for allies or coalition partners consistent with their capabilities, commitment, and political constraints. Making formal or informal alliances work requires the ability to understand allies' view points well enough to understand how the mission looks from their eyes. Army leaders must realize that allies' commitment may be less than our own, that they are undoubtedly organized differently, think differently about how command functions, receive authority and operate under a different code of law, and behave differently.

Allies' presence and participation in a coalition is a matter negotiated at the highest political levels. Often the strategic value of their participation will be enough to offset a lack of military capability. Cultural awareness and sensitivity to nuance and difference is essential. Normally exchanging liaison officers will continue to be essential to a healthy working relationship to bridge cultural differences or at least to make differences known in advance before they become operationally significant. As the Army transforms it is likely that potential future partners will

not have kept pace. Efforts to collaborate with other nation's military in exercises and experiments will help to expose potential coalition teammates to joint and Army concepts for future operations.

Culture of Nongovernmental Agencies

Support of indigenous populations in war depends largely on the provision of essential goods and services. A sheet of plastic to replace a roof destroyed by hostile or friendly fire can be invaluable. An objectively neutral party willing to accept high risks, even death, may be a valuable means of communication with the people at risk. The International Red Cross is one of the oldest such organizations, founded in the late nineteenth century to alleviate suffering by military members of captured opposing forces.[90] In the twentieth century, a wide variety of humanitarian organizations sprang up to alleviate all kinds of suffering. These organizations can become the battle tourists of the twenty-first century, appearing at the first sign of catastrophe to render aid, often without the means to distribute it on their own, yet determined to maintain their independence to decide when and where the need for their assistance exists.

Each agency has its own cultural-ethical template and does not necessarily share a common view of their mission with other agencies. Nongovernmental organizations like the *Medècins Sans Frontiéres* (doctors without borders) often operate with great moral authority and political influence in allied nations' capitals, notwithstanding their efforts to remain neutral.[91] In country, they often rely on military forces for security to do their job. They can compete with military organizations for in-country contract labor. Commanders trying to reestablish social order in an area of responsibility receive help as deliverers of required services or aid enter the area. Working with some of these humanitarian agencies requires great tact on the part of military officers, and what FM 3-24, refers to as "Hand Shake Con," informal, situational, and personal agreements, based on mutual trust to do what is promised.

External Cultural Factors

Military operations are a manifestation of U.S foreign policy. Actions at all levels must be consistent with national law and norms of conduct while meeting the expectations of the American people, or they are doomed to fail. They must also be consistent with the message they convey to world audiences, those favorably disposed and neutral to the American endeavor, and those hostile. How these divergent audiences will interpret actions is a function of their culture and the messages they are given. Soldiers at every level must understand that their conduct can have catastrophic effects on how others perceive the U.S. Soldiers must act within the constraints of the U.S.'s expectations, even at the cost of accepting greater risk to their lives.

British General Rupert Smith had extensive experience dealing with the Global Media in Northern Ireland, Bosnia, and as Deputy Supreme Allied Commander at Supreme Headquarters Allied Powers, Europe. He reflects on the relationship between commanders and the press in his book, *The Utility of Force.* His analysis is worth quoting for its absolute importance of the role the press plays in modern conflict and the inherent contradiction in commander-press relations.[92]

> In the theater the forces of all sides, and in particular the political leaders and military commanders, have a symbiotic relationship with the media: the media needs the military because they are the cause and source of the story; the commanders need the media to tell the story to their force's advantage, but also to tell their own people and government how well they are doing, or at worst, how gloriously they are losing. In addition, commanders and leaders alike need the media in order to learn the perceptions of the other side, and to explain their own version of events. To this extent the media is a crucially useful element in modern conflicts for attaining the political objective of winning the will of the people. It has become the medium that connects the people, government and the army, the three sides of the *Clausewitzian* triangle.

Smith then goes on to explain the cultural divide that separates the commander and the media.

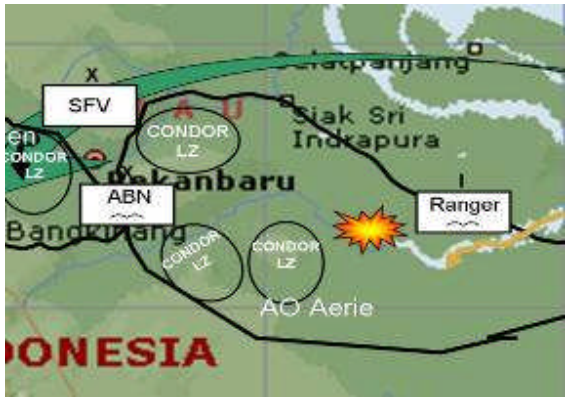
> The political leader and the commander expect the reporter to tell his story as he would wish it to be told and as he told it to the journalist. But the journalist sees them as a source of his story, and the events and meetings of the day are presented to support this story rather than that of the political or military leaders. . . the media claim to be objective, and tend not to be, whilst the political and military leaders persistently expect the objectivity of a shared perception where one is most unlikely to exist.

Two points are essential. First, the media plays an essential role now and in the future in contemporary conflict. Second, the commander sees him or herself and his or her force as the center of the story. However, the media sees the military as simply one actor in a set of events, statements, conditions, actors, and victims, about which the reporter writes from his vantage point. The principal cultural perspective the reporter brings to his task is the faith that he or she does so objectively. Army leaders at all levels must understand this view and learn to communicate with the press in full knowledge that the press has its own objectives.

3-5. Conclusion

The cost of failing to establish and maintain an Army founded in strong moral ethical values, aligned with those of the Nation, is so unacceptable that this chapter rises to near primacy in the conveying the importance of studying the human dimension . Yet it is but one of three principal components that make up the human dimension. Much of the foregoing moral component discussion is timeless, well-established treatment of enduring truths about human nature in warfare. What is truly new is the growing complexity of future operations that in turn increases ambiguity confronting the future Soldier with decisions that in the past fell to far more senior and more experienced leaders. The challenges facing future Soldiers outlined in this chapter are just part of the equation leading to a model of holistic fitness essential to meeting tomorrow's demands. Consider these challenges in context with the physical and cognitive components of the human dimension treated in the next two chapters.

Vignette



Ranger Team Rangoon pulled their boats up in four different spots on the Seingar Kampar River banks and stashed them in the lush underbrush. It was pitch black and deadly still with only the sounds of birds and insects in this remote section in the middle of Sumatra. The air was hot and palpably thick with moisture. Team members moved rapidly up the cart path on the south bank to their designated rally point.

First Lieutenant Sam David wondered if the aircraft that inserted their boats ten miles downstream had alerted any defenders. Nothing showed on his tablet screen but the dots representing the rest of his team, and they were a pleasant and reassuring blue. He adjusted his helmet to be able to read the tablet on the visor while navigating with the infrared image from the integrated helmet mounted cameras. Theirs was a passive mission until 0300 unless they stumbled onto Ibn Ander or any of his forces—a possible windfall given the way Ander moved around.

Ibn Ander was the one-time governor of the Central Province in Sumatra. Now he had proclaimed his former province the Central Caliphate. He'd either co-opted the GOI forces to join his insurgency or drove them out. GOI was too weak to react and now Ibn Ander was calling for an international jihad to support his eventual capture of the rest of Sumatra and—presumably—all of Indonesia. David's Ranger platoon was on loan to the lead elements of TF Green, the U.S. Army component of the coalition mounted to oust Ibn Ander. The Rangers were tied in with other special operations forces and tasked with covert actions to oversee potential joint heavy lift landing areas, capture Ander's key leaders, and pave the way for the final forcible entry operation aimed at liberating the captured capital city of Pekanbaru.

A Company, 2nd Ranger Battalion had its platoons working the landing areas in AO Aerie east of the capital. At 0300 the SEALs would be creating havoc north of the city as a diversion to mask the approach of 1st Marine Expeditionary Brigade in their V22 Ospreys. If all went as planned the assault would start at nightfall around 1800 that day. Laying low and not being discovered by the fishing boats and local farmers would be fairly easy for David's platoon as they were in an heavily forested triple canopy copse of jungle on the south edge of AO Aerie. AO Aerie was actually an immense cultivated patchwork of smaller fields with rice, potatoes, wheat, and sugarcane. The huge Condors would discharge an entire FSV battalion that night. They would move directly on the road network and cleared fields to the eastern suburbs of the capital.

David knew the plan. His job was to make sure the planned flight approaches were clear. He had twenty hand-launched Hummingbirds that would map the area to supplement the satellite shots using millimeter wave and optical scans to uncover any active aerial mines or anti-aircraft systems. Any they found they'd either disable or mark for avoidance. The Hummingbirds were small and nearly silent. Time to get them up.

Sergeant First Class Mike Foster, the first platoon sergeant, was David's ace in the hole. Both had worked together before in David's first platoon command back in Germany. Ranger leaders normally had to command a line unit of comparable size before taking command in the Ranger Regiment. David and Foster had seen action in Afghanistan. They had brought that experience to A Company, but this was special operations now and not a standard infantry platoon.

"Sergeant Foster, report," David typed in.

"In position, launching set one now." Foster replied.

An hour later, all the Hummingbirds had swept the area. Only one showed anything of concern—an emission from a cell phone on a GOI frequency from a small village two kilometers from David's position. As he analyzed this data, the company and battalion analyses meshed with TF Green's larger view. It was Ibn Ander himself or at least someone from his inner circle! They could capture or kill him now and put an end to this operation!

The information flow was fast, so fast that someone in Washington had already ordered an immediate engagement. Cruise missiles or smart bombs would obliterate the position in minutes.

"Check fire! Check fire!" Foster broadcast. "Civilian women, children, and men detected sleeping in tents all around the target site." They would have to take the headquarters out conventionally or just keep an eye on it until the cavalry arrived.

David suggested sending a patrol in closer and company agreed. He picked Foster to lead while he kept the rest of the platoon hidden in overwatch positions. Their piece of AO Aerie was three times the size of what a platoon covered ten years ago. They could surveil so much more and put lethal and nonlethal fires virtually anywhere in their sector. "This is pretty dicey," David thought to himself. They were hanging out way too far and with far too little force to take on Ibn Ander's army. Surely the Emir had a nearby protective force.

"Stand off as far as possible," he told Foster, "and get some more images and scans of those tents. We don't want to trigger an evacuation of Ander and his henchmen, but, if they start to move, the rules of engagement are clear: take them out."

"Roger, sir," Foster adjusted his faceplate. "I just hope we don't run into any awake farmers like that sea-air-land team (SEAL) in Afghanistan."

"Yeah, well, you know what to do if you do, right?"

"Try the nonlethal stuff? You know that's not very reliable, Lieutenant. Is this important enough to not let some innocents compromise our mission?"

"Just use your best judgment, Sergeant. Good luck."

Foster's patrol took nearly an hour to traverse the edge of the jungle. They'd remained unexposed, or so they thought. What they didn't detect were perching sensors linked with fiber optics to Ibn Ander's security team. By the time the patrol took up hide positions in view of the village it was nearly dawn. Not knowing they'd been detected, Foster made sure the entire patrol got completely camouflaged and settled in to wait and watch.

David thought about his conversation with Foster. Did he mince words on the rules of engagement? Foster's mention of the SEALs bothered him. The whole special operations force community had hashed that event over thousands of times. "If they'd just killed the shepherds they'd have lived," the hardcore guys argued. Lord, it was never so simple.

As the sun rose and the fog started to burn off Foster's patrol saw lots of activity around the tents. Women and children tending fires and other people moving about like they were on a camping trip. Why the noncombatants? Soon the answer came. Mortar's popped in the midst of the small crowd! Foster could just barely make out the tubes. The whistle and thump came about 45 seconds later right on the wood line! Right where the patrol had set up! Foster heard shouts and a scream. His guys were getting pummeled. All he had to do was fire the surface-to-air weapons to take out the mortarmen, but the women and kids? "Dammit! Pull back!" He shouted, no longer concerned about noise. He couldn't bring himself to order shooting back in spite of how he'd run it through his head over and over again.

"Launch a pair of Wasps," he whispered to the team leader. "We'll get those bastards later!" With tears of anger Foster grabbed his wounded communications specialist and melted into the jungle to the patrol rally point.

This story has multiple messages pertinent to the moral and ethical aspect of the human dimension. Special operations forces such as this Ranger unit frequently confront conflicts between their drive to accomplish the mission and the actualities of the situation. So will conventional forces. This vignette illustrates the critical need for all Soldiers to learn when to pull the trigger and when to relent, often in a crisis where, as Sergeant First Class Foster discovered, a leader needs to decide between Soldiers' safety, and the mission, or using lethal force on innocent civilians. Certainly, training and discipline are premium qualities of elite forces such as the Rangers, but as Foster remembered the tragic fate of Navy SEAL Team 10 in Afghanistan, even the most highly trained can face daunting dilemmas.

Required Capabilities

With the extensive knowledge and experience of Army forces developed in operations since the OEF, new lessons learned and tactics, techniques, and procedures (TTPs) are emerging that will impact joint and Army doctrine concerning Soldier and leaders character development and the moral component of the human dimension.

- Doctrine must identify with greater clarity the breadth of requirements confronting the Army, and provide the institutional narrative necessary to inspire and nurture adaptable, self-aware, and self-reliant leaders and structures capable of making rapid transitions between conventional and unconventional actions and conflicts.
- The Army requires continued articulation of its institutional values and the virtues in context with the future environment.
- Future doctrine must emphasize the influence of moral-ethical conduct of Soldiers on the Army's credibility as a fighting force, mission, and reputation in the world.
- Doctrine must initiate a change to Army culture and the traditions to ones that demand and reward adaptation and balance the focus on warfighting with other contingency operations across the spectrum of conflict. This cultural change will serve as the catalyst for a comprehensive revision of supporting doctrine.
- Future Modular Force commanders require a common doctrinal lexicon for cultural and language proficiency and capabilities.
- Future Modular Force commanders require doctrinal solutions that include TTPs for developing and employing human terrain expertise, reading the social cultural landscape, and developing negotiating skills in themselves and subordinate leaders.
- The Army requires the capability to sustain the health of the Service professional military ethic. As the Army Center of Excellence proponent for maintaining and promoting the health of the Army's service ethic, the U.S. Military Academy (USMA) through its William E. Simon Center for the Professional Military Ethic requires the capability to develop curriculum materials for integration into the OES in order to bolster the moral and ethical foundations of military service.
- Since NCOs also bear special responsibility for the health of the Army professional military ethic, the U.S. Army Sergeant Major's Academy at Fort Bliss should be given special authority and responsibility to the commanding general, U.S. Army Training and Doctrine Command (TRADOC), to guide the understanding of ethics by the NCO corps.
- Identify and resource the organizational proponent responsible for training, educating and evaluating individual and collective proficiency.
- Generating and future Modular Force commanders must have the capability to integrate training that promotes character development.
- Initial military training (IMT) cadre must possess the capability to provide training that builds the warrior spirit and provide skills that enable recruits/cadets to cope with and overcome the common stressors Soldiers face not only in IMT but in units undergoing training and in combat.
- Future recruits and officer cadets/candidates require the capability to internalize the moral content of the military oaths as integral foundation of the Army service ethic. This capability must be made explicit at the time of induction and accession, and reinforced/integrated on a periodic basis as part of the socialization process in IMT.
- Training scenarios in IMT courses require the capability to integrate ambiguous and complex situations involving legal and moral-ethical issues, with particular emphasis on application of rules of engagement and moral reasoning in complex situations, followed by rigorous critique of choices made in terms of costs and benefits of decisions and moral ethical implications. Trainees and officers in the basics courses must understand there can be immediate and long term institutional costs from momentary lapses in the heat of combat or during long periods of desensitizing boredom.

- Training scenarios in field and situation training exercises at home station and especially the combat training centers (CTCs) must have the capability to integrate ambiguous and complex situations involving legal and moral-ethical issues, with particular emphasis on application of rules of engagement and moral reasoning in complex situations, followed by rigorous critique of choices made in terms both of costs and benefits of decisions and moral ethical implications.
- Future Modular Force commanders must have the capability to integrate into the pre-deployment training program, cultural training targeted to the intended AO.
- Habitually integrate cultural complexity into Army training exercises especially the CTCs as challenges to mission accomplishment and the subject of after action review (AAR) assessments.
- IMT must possess the capability to identify those with an aptitude for languages and develop that aptitude through additional training and education.
- IMT must initiate the process of instilling cultural awareness and sensitivity in new recruits and officer cadets.
- Soldiers in intelligence, law enforcement and protection specialties must receive professional training that gives appropriate emphasis to the importance of cultural understanding to the development of human and police intelligence.
- The Army must develop the capability for distributed education to sensitize and prepare Soldiers for the difficult decisions that will confront them.
- With the costs of real time force on force training increasing, training simulations designed to improve individual and collective competence at lower cost require the capability to integrate complex moral ethical situations requiring rapid decisions. The simulations must also be capable of discreet outcomes and results based on leader decisions.
- The Army must continue to develop technologies and material solutions that can assist in developing necessary Soldier, leader, and unit language and cultural proficiency for use across the training domains.
- Provide digital translation through personal digital assistant-like devices uploaded with language recognition and translation software for use by small units when translators/interpreters are unavailable. These devices should also enable wireless reachback to information databases on language, culture, and customs.
- Extensive acquisition of “in home” language training for use by Soldiers to achieve at least minimal language proficiency.
- The enormous cost of real time training argues for the rapid development and acquisition of individual, leader, staff and small unit level interactive simulations that integrate language, interpersonal, cultural, adaptive thinking, negotiation, and complex problem solving skills into multiple time-constrained scenarios.

Officer and NCO professional education at all levels must have the capability to deliver progressive and sequential content on those skills, knowledge, and abilities required to develop and sustain Soldier and leader character that develops and sustains the warrior spirit, Soldier morale, and unit cohesion, and prevents combat and operational stress reactions (COSR) casualties.

- Officer and NCO professional education at all levels must have the capability to deliver progressive and sequential content on those leadership skills that develops and sustains the warrior spirit, Soldier moral, and unit cohesion, and prevents COSR casualties.
- Mentorship relationships should give proper ethical modeling high priority as an essential element without neglecting the criticality of technical competence, which, in fact, is a key virtue of all in service.
- Leader evaluation must be capable of assessing individual modeling of declared institutional values and virtues.
- Professional education experiences must involve formal and mentored opportunities to reflect on individual ethical development and the importance of the leader's role in creating an ethical climate in which subordinates can act ethically and develop their moral identity.
- Officer and NCO professional education must include progressive and sequential content on cultural literacy through cultural competency; specifically understanding key groups capable of influencing military operations in the immediate and broad sense; groups like the press, nongovernmental and other governmental agencies, and the American and foreign publics. This must include negotiation skills.
- The Army must develop a broad, sequential, and progressive program of institutional and self-development language learning with the goal of attaining a high level of fluency in targeted positions, at least a moderate expertise in all mid-level commissioned, and NOC leaders. This will include a combination of Army schools and advanced civilian education.
- The Army must have the capability to identify those applicants with obvious psychological factors that should eliminate them from military service.
- The Army must maintain standards for recruitment that avoid accession of recruits and officer cadets/candidates with demonstrated, significant behavior problems.
- Army recruiting programs must make clear the warrior purpose of uniformed service and the moral-ethical expectations placed on members.
- Army must have the capability to enlist, commission, and manage linguists in targeted languages, and integrate language and culture training within other training events.
- Future Modular Force commanders require the facilities at home station and in the AO that positively affect Soldier morale (such as, Department of Family and Children's Services, morale, welfare, and recreation services, Soldier living quarters, training and maintenance facilities, family housing, force protection, and health care).
- The Army must capitalize on its experience reintegrating Soldiers who have suffered traumatic injury or psychological harm in Army units and civilian life by developing programs deliberately designed to meet Soldier reset requirements.
- Future Modular Force commanders require facilities at home station and the CTCs that will replicate the cultural landscape within which their units will likely operate.
- Regardless of its role within the spectrum of conflict, the Army requires a capability to reestablish—or introduce—the rule of law, operate and administer a corrections system for offenders pending criminal proceedings, and enable the advent of a functioning judicial system that adjudicates individual cases for final disposition.

Questions for Further Examination

- Should the Army continue to research biomedical and pharmaceuticals solutions that mitigate or eliminate the factors that degrade Soldier morale?
- Should the Army continue to research biomedical and pharmaceutical solutions that assist in recovery (such as, fatigue, anxiety, fear, and sleep deprivation) and the short and long-term physical and mental consequences, and their ethical implications?
- What are the potential pitfalls of biomedical or pharmaceutical solutions to mitigate or eliminate factors that degrade Soldier morale or assist in recovery?
- What is the most effective way to indoctrinate Soldiers with the warrior spirit and how can the Army measure the success of indoctrination?
- How do unit rotation policies affect morale and ethical conduct of a force?
- How does stability of a command team, staff, or other group affect performance, morale, and unit effectiveness?
- Is the Army adequately preparing junior leaders to develop and sustain the warrior spirit, Soldier morale, resilience, unit cohesion, and command climate?
- In light of ethical failures and in spite of the Army's dedication to its core organizational values, what additional effort is required to determine the linkage of values to performance and behavior?
- What are the most effective methods the Army can use to accomplish Soldier socialization and identity development in IMT and in units?
- Which moral-ethical lessons learned from post cold war conflict need integrating into officer and NCO professional education?
- How does the modular, non-organic, and multi-component composition of most support brigades affect unit cohesion, morale, and performance?
- What is the proper balance between training for skills, knowledge, and abilities and organizational socialization especially in IMT?
- How can leaders use simulations to strengthen Soldier decisionmaking in complex moral ethical situations in order to integrate organizational values with individual values and improve values based performance?
- What are the factors that positively affect Soldier moral-ethical behavior?
- How can the Army anticipate required language and cultural awareness requirements and then target those most likely to be required for subsidized learning in the force?
- Should the Army constitute of a small number of standing linguist units capable of maintaining teams of experts with linguistic fluency and acting as cultural red teams to prepare units for deployment to 'operations amongst the peoples?'
- What should be the required level of language and cultural proficiency in noncommissioned and commissioned leaders?
- How should the Army organize and distribute linguists and cultural experts?
- How can training simulations be tailored to replicate future full spectrum operations scenarios for preparing commanders, units and staffs?
- What are the challenges and solutions associated with the [illegible] socialization and identity development as they relate to service in the reserve component?

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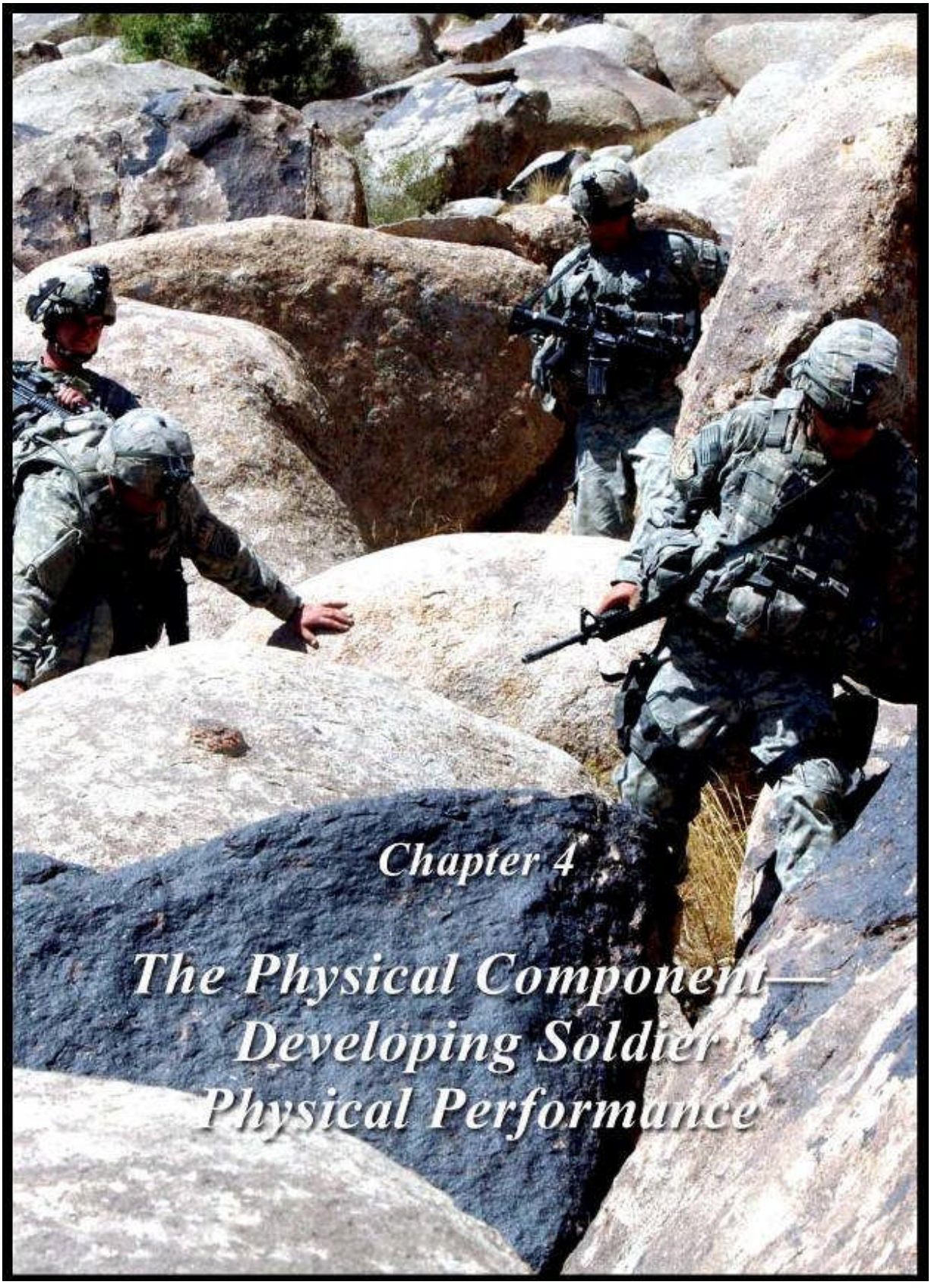

Chapter 4
The Physical Component—
Developing Soldier
Physical Performance

You have to lead men in war by bringing them along to endure and display qualities of fortitude that are beyond the average man's thought of what he should be expected to do. You have to inspire them when they are hungry and exhausted and desperately uncomfortable and in great danger; and only a man of positive characteristics of leadership, with the physical stamina that goes with it, can function under those conditions.

GEN George Marshall

Chapter 4
The Physical Component—Developing Soldier Physical Performance

4-1. Introduction: Holistic Fitness

Soldiers performing full spectrum operations in 2015-2024 will face unprecedented mental, moral, and physical demands. The OE chapter described the future OE and the demographic challenges that will confront the Army. The cognitive and moral chapters focus on demands of an era of persistent conflict. Collectively these demands on Soldier performance drive the Army to reevaluate recruiting, training, and retention of Soldiers. This chapter addresses the physical component of the human dimension and its impact on this reevaluation effort. Soldier readiness in the future OE will depend on a conceptual approach that focuses on *holistic* fitness to ensure optimal and perhaps even enhanced performance. This holistic approach to fitness will incorporate both the traditional aspects of physical fitness, such as aerobic capacity, strength, endurance, flexibility, and coordination while also attending to the nutritional, psychological, and sports medicine contributions for optimal physical performance across a full spectrum of operations. This chapter explores ways to optimize the human capital of the Army without compromising overall physical fitness. It suggests expanding current tailored fitness programs to adjust to changing demographics. It also reinforces programs and standards that permit highly talented individuals to make career-long contributions to the Army in spite of disabilities or the inability to achieve certain combat standards.

Physical Fitness

The Army must consider changes to physical training over a long period. The application of a progressive physical education model described in this chapter will promote a systematic and progressive physical development program over the entire course of a Soldier's military career. The principles and practices of Army Regulation (AR) 350-1 and FM 21-20 remain valid, but require restructuring to support a progressive physical education model as well as changing future physical and mental demands. The Army must consider how aerobic capacity and muscle strength declines as individuals age; altering training and fitness programs to accommodate these life span changes in order to reduce injury and optimize training regimens as Soldiers age.

To change physical fitness the Army must establish a learning model for the systematic development of the modern combat Soldier. This model aims at achieving the holistically fit Soldier in three comprehensive dimensions of military performance. The first dimension is tactical (technical) whereby the Soldier is proficient in common Soldier tasks; comprehends situational awareness (adaptive, innovative, and decisive); shows devotion and loyalty to duty; and understands subordination. The second dimension is the manner in which the Soldier remains physically fit, self-disciplined, and physically resilient. The third dimension is the manner in which the Soldier exhibits mental characteristics. These characteristics include toughness, resilience, determination, and tenaciousness, along with personal courage; respect for self and others; commitment to principles of honor and integrity, and supports others as part of a team—both achievements and efforts. Within each dimension, there are common Soldier knowledge, skills, and abilities that inform the various developmental methodologies.

After determining outcome goals based upon the three dimensions of military performance, there are three methods of developmental persuasion to apply education, training, and inspiration. Education is persuasion through understanding (logos); training is persuasion through repetition and reinforcement (ethos); and inspiration is persuasion through emotion (pathos). Commanders must integrate these methodologies into a coherent and comprehensive program of instruction to achieve complex goals and changes in behavior.

4-2. Challenges to Adapting to the Future OE

Joint and Army concepts call for a very adaptive future Modular Force. Such concepts as operational maneuver from strategic distances could find Soldiers stationed in the Arctic climate of Alaska on one day deploying the next day to a desert or jungle environment. With no time to acclimate, Soldiers must be in top physical condition to be able to function in such extreme conditions. Temperatures topping 125 degrees Fahrenheit in Iraq are common and Soldiers outfitted in full body armor cannot escape the heat. The JOE will create many demands, but the anticipated pace of future operations in persistent conflict will tax Soldier's endurance much as combat operations have always challenged the military.

Physical fitness remains one of the key inputs to overall unit readiness. Recent combat experience continues to demonstrate the role physical fitness plays in alleviating combat stress. Whether it is building individual confidence, preparing Soldiers for combat operations, or providing a source of decompression, physical fitness programs must remain a centerpiece of unit training programs.

The future Modular Force will see a shift in the role of physical fitness programs from training to meet test standards to developing Soldier-athletes. A Soldier-athlete is someone who is *holistically fit*—physically ready, nutritionally sound, mentally strong, and confident in their own abilities and in those of the members of the team. Developing a Soldier-athlete requires not only a change in training techniques and assessment tools, but also in how Army leaders plan, direct, and participate in fitness training. Rather than focusing on assessment and easily measured fitness results, leaders must take into account the individual Soldier's goals and needs while continuing to focus on the unit's mission of maintaining combat readiness.

4-3. Why Change is Necessary

Persistent conflict will place physical and psychological demands on our Soldiers that our current training methods will not meet. This assertion assumes an OPTEMPO that is at least as demanding as today's tempo and a complexity of operations that will be even more demanding. Consequently, the Army must develop a programmed approach to physical training. Future physical training must focus more on performance of specific military duties rather than on

universal fitness standards. The challenge is not just to improve Soldier performance, but rather to tailor fitness efforts to specific physical performance requirements. Future physical fitness assessment and training techniques must have parity with other training. Leaders should not have to choose between fitness and tactical and technical proficiency.

Physical Fitness Evaluation Prior to Enlistment

Currently, Army recruiters and the U.S. Military Entrance Processing Command review a candidate's medical history to identify current or past behaviors or injuries to determine whether an individual is a risk for completing their initial military enlistment. In the future, this evaluation can align a Soldier's physical abilities with those attributes required of a military occupational specialty (MOS), focusing on the Soldier's potential rather than current fitness. This will help in designing physical training programs in initial training to build on Soldier abilities.

Prior to enlistment, the Army will utilize an initial assessment tool similar to the current cadet fitness challenge. This assessment addresses physical fitness through tests of work capacity, cardio-respiratory fitness, muscular strength, and flexibility. The assessment covers five broad sections including cardiovascular (aerobic) fitness, cardiovascular (high intensity) fitness, upper body muscular fitness, lower body and shoulder/midsection muscular fitness, and flexibility. The score scales are criterion referenced and gender-based.

> Physical fitness training programs for deployed or deploying units in support of ongoing combat operations should be based on the most physically demanding tasks from the unit's METL.
>
> - AR 350-1

The assessment of physical fitness focuses on physical performance, body composition, and aligning the potential recruit to appropriate MOSs. Implementation of successful pre-enlistment physical evaluation is one component of an on-going and continuous physical training regime from IMT, to the first assignment and throughout the Soldier's career.

Physical Fitness after Initial Military Training (IMT)

Adapting physical fitness training during IMT allows Soldiers to increase their fitness without compromising standards. Recognizing that training cannot transform the average recruit into an athlete in a few short weeks, the Army must continue to establish assessment goals that ensure Soldiers can achieve satisfactory performance and, more importantly, demonstrate the potential for continued improvement.

Once Soldiers complete their initial training, unit led fitness programs continue to develop the Soldier with emphasis on the unit tasks and the particular demands of the individual's position in the unit. To monitor and insure Soldiers' health and fitness, the Army will continue to require a health risk assessment that evaluates not only aerobic and anaerobic fitness, but also flexibility and body fat composition. Future health risk assessment may include automated medical record reviews, remote vital signs measurement systems, and other diagnostic tools, but the purpose will remain to monitor health and fitness individually and, by extension, collectively. After that

generic assessment, further evaluation will determine the fitness required to fulfill a Soldier's individual wartime mission. Unit physical fitness training will need improved assessment techniques that focus on the ability of Solders to perform their MOS while deployed. This assessment process will provide the Soldier and his or her leadership with a profile of those areas requiring future attention thus enabling a tailored training approach not unlike the personal trainer model used in modern gyms.

Army fitness programs must also address Soldiers with special requirements. This includes those injured or wounded in training or combat. The unit fitness trainer, in conjunction with medical personnel will develop individualized training regimes that address the needs of these Soldiers.

The Army must tailor fitness programs for the U.S. Army National Guard and the U.S Army Reserve just as those for active duty Soldiers to the unit's mission and the specific requirements of each MOS. The challenge the reserve component faces is not likely to change. National Guard and Army Reserve Soldiers must have a well established physical fitness training program that capitalizes on both periods of active service and opportunities to maintain combat readiness the rest of the time. The adaptive training programs discussed below as well as improved access to military or civilian fitness centers offer some solutions. Strong leadership and individual motivation is particularly critical to reserve component physical fitness.

4-4. Army Model for Physical Fitness Education and Training

Figure 4-1 depicts a four stage model for physical fitness education and training. This progressive model moves through the first two stages, beginning with general physical competency skills and basic low quality of movement requirements. It transitions to more directed skills aligned with Soldier specialties and tasks that require greater, more refined physical movement.

The model parallels specialized sports performance targeting combat performance. But, unlike sports development that can be very specific as it tapers to the top of the pyramid, Soldiers must maintain a broader level of skills and fitness reflected in the dashed line on the figure. Physical fitness training should not be exclusively task specific, but designed to adapt to the rapidly changing battle environment. This presents unique challenges in developing and administering future physical training programs.

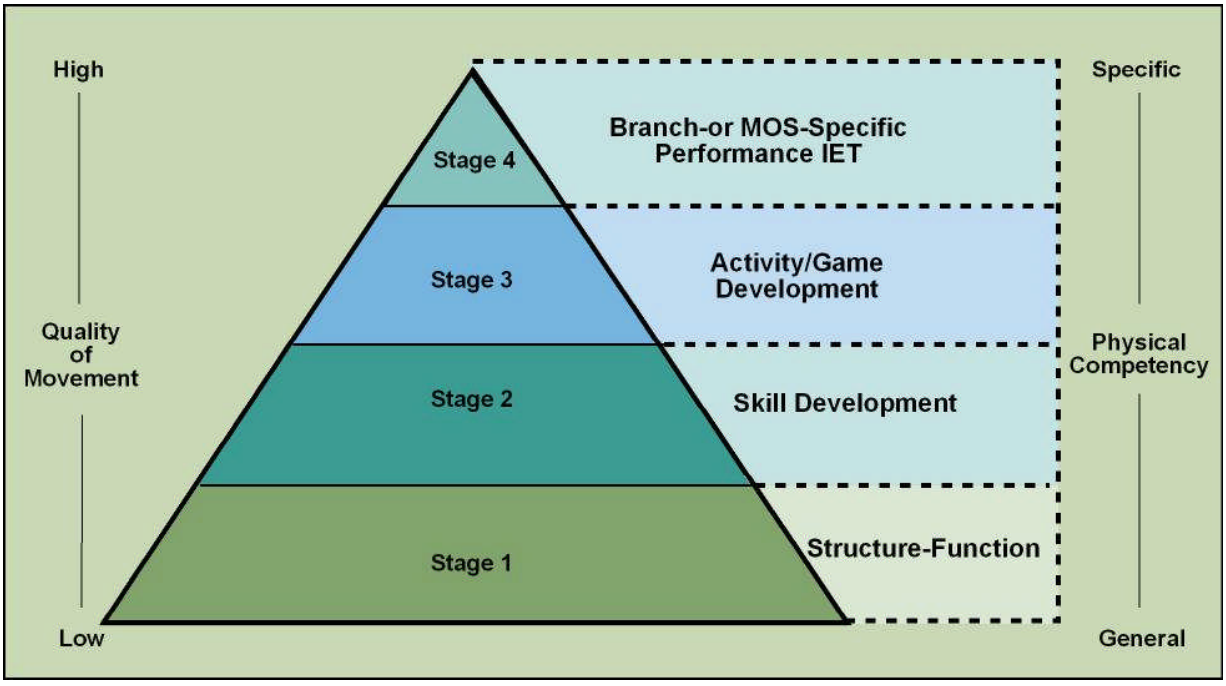


Figure 4-1. Stage-sequence Adapted for Army Physical Education and Training

Structured Physical Development

The Army must design a physical development plan to provide a general strategy and goals for a year-to-year sequence of training and education. The plan should include timing of evaluations, scheduled competitions, and potential deployment.

The annual plan should consist of a series of intervals and phases arranged in units or cycles. The plan must describe in detail the specific skill development, exercise selection and training volume, intensity, and duration of the training. Each phase and cycle has a specific objective; arranged to facilitate, enhance, and optimize the learning process and physical development to achieve the desired outcome. This arrangement of phases and cycle is the concept of periodization, introduced by the Russian's in the 1960s and developed in this country in the 1970s.

Programmed Physical Development

Leaders can use training principles to develop a physical training program that specifically addresses the nature and duration of the stresses to apply to stimulate learning and adaptation—what will actually be done and how. The two main aspects for developing a fitness training plan are training specificity and training volume. The principle of specificity relates learning to the lesson taught, a matching between the teaching or training and the intended outcome. The exercises and skills practiced have a direct impact on the taught or trained variable. Quite simply, specificity means that to jump higher, training must include jumping; to run faster, training must include fast running; to improve at golf, play golf. Teaching and training must specifically match desired outcomes.

Overload, progression, novelty, and recovery are principles involving training volume. To apply stress the biological system or systems, overloading exposes a physical or energetic demand on the body that is beyond what is normal. Examples of overload include exposure to a new skill, changing the length of stride during running, altering the training volume (intensity and/or duration), changing head position during throwing, lifting an external load to stress muscles, bones, tendons and ligaments, or swimming to exhaust the cardiorespiratory system. Appropriate and repeated exposure to physical or energetic loads results in specific adaptations.

The principle of recovery is the most overlooked, and least understood aspect of any teaching and training program. As defined by the general adaptation syndrome, the stress of physical training can be positive or negative. The negative aspect of stress is expressed as overtraining; where skill execution or training adaptation are actually impaired by excessive fatigue due to continual overloading. In most cases, biological adaptation to stress follows the application and removal of the stress. For example, blood volume significantly decreases when running. However, blood volume restores to level higher than pre-exercise after running. If requiring training events at a frequency that limits the recovery of blood volume, then adaptation and future training bouts will be impaired. Thus, it is imperative to include appropriate amounts of recovery in the teaching and training plan. A growing literature points to the importance of linking properly timed nutrients to both promote recovery and to enhance physical performance.

Understanding the impact of the exercise on the individual in training and the individual's recovery potential on the stressed systems facilitates recovery. Despite research on recovery, to date there are very few, if any, simple markers of recovery that the practitioner is able to utilize. Thus, the trainer must guess when sufficient recovery has occurred and when it is appropriate to continue training. With proper planning, trainers can continue the teaching and training process while providing time for recovery. Recovery occurs by rotating periods of high-volume training with low-volume training, or by swimming instead of running, or body weight calisthenics instead of lifting weights through the concept of periodization and the principle of novelty. There are many examples and methods for providing active recovery. Despite this, there is still a clear necessity for passive recovery, complete cessation of all activity, to ensure recovery and adaptive change.

Supervised Physical Development

Supervision of physical training is of cardinal importance for two reasons: Trainers must watch training to evaluate technique, progress, and provide immediate and appropriate feedback. This ensures efficient skill acquisition and proper performance of intended training. Secondly, supervision is a primary factor in risk mitigation.

Assessment

Assessment is a planned process for evaluating need, outcome, and value. In physical education, assessment includes individual and program evaluation. In assessing the physical development and skill competency of individuals, one evaluates both the effectiveness and value of the program through the progress made by participating in the program. Apparent deficiencies revealed through testing confirm or prompt modification of a program.

Diagnostic testing is important in monitoring individual progress. A sound assessment package can reinforce the value of physical development to students. It can serve to motivate individuals to begin or continue in a physical education program. On the other hand, administering assessments too often can decrease motivation and waste precious instructional time.

Current physical assessment includes the evaluation of high and low-intensity work capacity, high-intensity cardiovascular fitness, upper and lower body muscular strength, and abdominal fitness. Future assessment programs may benefit from scientific advances in physical monitoring systems. Whatever the means used to assess fitness, however, Army leaders must understand the basic principles discussed in order to provide the best physical training possible, tailored to the Soldier's needs and abilities.

So far this chapter has treated physical training and development as a largely institutional nearly clinical process—a process well understood and applied today. Reaching out into the future requires an assessment of ways and means to attain and maintain high levels of physical fitness in the face of frequent deployments.

4-5. Fitness Training While Deployed

Frequent deployments to extended operations or training exercises are not a new situation for the Army. While each deployment is unique in both environment and mission, fitness training will aid in mission accomplishment as well as in helping Soldiers cope with the stress of deployment.

Commanders know that unit runs, combatives, intramural sports, and other opportunities to compete build cohesion and a sense of unit identity in a garrison environment. Such activities can be restorative and a break from routine when in a field environment or deployed on operations.

Because of the diversity of potential future missions, leaders need access to a variety of methods to maintain the fitness levels of their Soldiers. Methods must allow the leader to tailor exercise routines to the unit's deployed mission as well as available time, and the physical conditions of the deployment location. Leaders should challenge unit fitness trainers to identify

aspects of the training, which could double as "tactical fitness," allowing the leader to consider incorporating a "functional fitness" into mission preparation.

Fitness training goals during a deployment include maintaining mission performance, reducing stress, and facilitating rapid acclimation. Unit fitness trainers will be invaluable in designing fitness programs that address all three goals.

While the conditions of some deployments may preclude the use of fitness equipment, commanders should include appropriate equipment in their loading plans for long duration deployments. By providing a variety of exercise options, Soldiers will be able maintain their individual fitness goals. Available equipment will further allow Soldiers to perform the greatest variety of fitness training, while also increasing options for mission specific training.

Implied in the Army's capstone concept is a requirement for Soldiers to perform rapid acclimatization to a new AO. While bio-medical research will result in technology enablers that decrease the required time, the critical role of fitness training continues. Some acclimatization can occur prior to deployment, during deployment, or after arrival in the AO. Unit fitness trainers, in collaboration with the unit's medical and operations staff, will utilize the deployable fitness program to expedite the unit's acclimatization.

4-6. Conclusion

This chapter outlines some basic current principles of physical fitness and fitness training programs. It calls for changes in the Army's approach to physical fitness to expand existing programs into a more complete or holistic approach that takes into account all aspects of the Soldier's well-being. Thus, the physical domain of the human dimension links inextricably with the moral and cognitive domains. Soldiers who are healthy in body, mind, and spirit can function at their peak no matter what the challenge. To maintain an effective force in the demands of the

future operating environment the Army must seek a balance in all three domains—holistic fitness. Only through such balance will the future Modular Force maintain a sharp edge of combat readiness and the agility that the future will demand.

Vignette

First Lieutenant Woodrow W. Millsaps, IV knew he was in trouble when his parachute failed to respond to the global positioning system guidance. He'd exited the sixth C-17 with his platoon aimed for the center of Pekanbaru International. The damned place had been lit up like a Christmas tree when they'd jumped, but Millsaps couldn't see a single light when he looked down seconds before impact. Curious that his helmet mounted infrared and enhanced optics system wasn't functioning, Millsaps braced for landing blind, cursing the power pack that must have either failed or snagged and disconnected on his exit.

Strapped to the lieutenant's body were nearly seventy pounds of armor, his integrated body suit with its cooling system and health monitoring sensors, his M-19 weapon system and enough 5.56-millimeter ball ammunition for a pretty serious fight. He had a Camelback under the parachute harness that he would fill from two canteens in his drop bag that also carried more ammo, a variety of grenades and rations. He didn't know when to cut the bag loose so he wouldn't land with it, so he popped the quick release almost as soon as he knew he was going in blind.

Millsaps was a descendant of another Lieutenant by the same name, his great grandfather, a veteran of the 82nd Airborne Division who had jumped into Normandy during World War II. His grandfather and father were also paratrooper officers who had distinguished themselves in combat in Vietnam and OIF respectively. Woody the Fourth, they called him, and he had a heckuva legacy to live up to. Like his ancestors, Millsaps was a superb athlete. He relished the challenges of jump and Ranger schools. Conditioning marches didn't faze him, though he sometimes shared his contemporaries' frustration with having to do forced marches with all the modern mobility the Army possessed. The airborne community was a competitive bunch. He fared well in push-up and pull-up contests. It had gotten hard maintaining the airborne edge now that all Infantry BCTs were essentially the same, but Millsaps was awfully proud to be able to follow in his forebears' footsteps.

Woody the Fourth caught the flash of light reflecting off water. "Crap," he thought, instantly tensing and running through the water landing procedures. As burdened as he was and blind at that, shedding his kit was not going to be fun. If the water was shallow he might be lucky, but the Mandau River splitting Pekanbaru from west to east was the only body of water he remembered from their studies, and it was a swollen mountain-fed torrent according to the terrain data.

He hit the water hard and went under immediately, his weapons bag floating up and dragging him under even further. He hadn't had time to pop the harness shoulder releases before impact as they'd taught. He did that before the chute could fill with water and become an

unwieldy anchor. Simultaneously, holding his breath he unsnapped his chin and facemask strap letting the helmet pull away in the current. He'd miss it, but that didn't cross his nearly panic-stricken mind. Next he tried to cut loose the equipment bag, but the D-ring was so taut that he couldn't get it free. He popped the snaps on his Kevlar vest and shrugged out of it swallowing a mouthful of the river in the process. Nearly blue and close to passing out, he kicked with all he could rolling to his back in the hopes the pull of the weapons bag would bring him to the surface. His face popped above the water and as he gulped for air he took on more of the river, gagged, and threw up.

Millsaps felt himself losing strength fast as his oxygen-starved brain began to shut down functions. He rolled again and reached for the bottom with his feet, his head now a foot under water. Touching bottom he flexed his legs and thrust with his whole might toward the surface, much as he'd learned in survival swimming. When his head cleared the surface he spit, thrashed his arms to stay above water and gasping for a breath of air. It was barely enough as he sank again, the current and his weapons bag pulling him under. He tried to plane his body forward in the blackness and execute another bob. It was one thing to do it in a pool with lifeguards and yet another in Sumatra at night.

The second bob bought him another gulp of sweet air. Somehow he had to get to the shore or catch flotation. He tugged at the weapons bag strap thinking about cutting it with his survival knife strapped to his leg. Not much chance of that. Instead, Woodrow tried to reel in the waterproof bag. If he could get to it, it just might hold him up.

As the lieutenant struggled for his life, his company cleared the runways at the international airport. Millsaps was not the only missing paratrooper, but his platoon sergeant sent a digital query to the network. Instantly, the system queried Millsap's tracker, locking on a moving icon dead in the center of the Mandau River. "Not much hope for the lad," the older sergeant thought remorsefully, "and one of the best I've trained," he said looking at the screen with more than a little anguish before forwarding a message to the company that would initiate a search and rescue operation.

Millsaps' strength was ebbing from all the kicking and pulling on the strap. He managed to get the cursed bag under his chest and passed out with his head barely above water. He wasn't out long. A wave or wake washed over him, knocking him off the bag and running it out to the end of the strap again. The water roused him. He was angry now. Great-grandfather Millsaps was a hero at Saint Mère Eglise, and his grandfather won the Silver Star in action with the 82nd in the Phu Bai, Hue region in Vietnam. Here he was about to drown ignominiously without firing a shot at the enemy!

He tugged the bag back and snapped it to his combat uniform with the D-ring on his integrated shoulder armor pad. He used his right arm and scissor kicks to work his way out of the main current toward one of the shores—he didn't care which. As he struggled he began to see lights, lots of them, and realized he was getting close to the capital. With what seemed like his last ounce of energy Woody thrust his legs and arms in a half-coordinated sidestroke that propelled him out of the current for a brief second. His knee struck something, a rock or piling.

He didn't have the strength to stand, but he struggled to gain some footing, pushing, and thrashing with diminishing vigor. In minutes it would be over. He'd run out of reserves.

Millsaps last thought was of his wife, Sharon, and their two children. He didn't give up, though, still kicking feebly until the weapons bag caught on something and the unconscious officer came to a stop face up in an eddy hidden from sight from the shore by tall reeds.

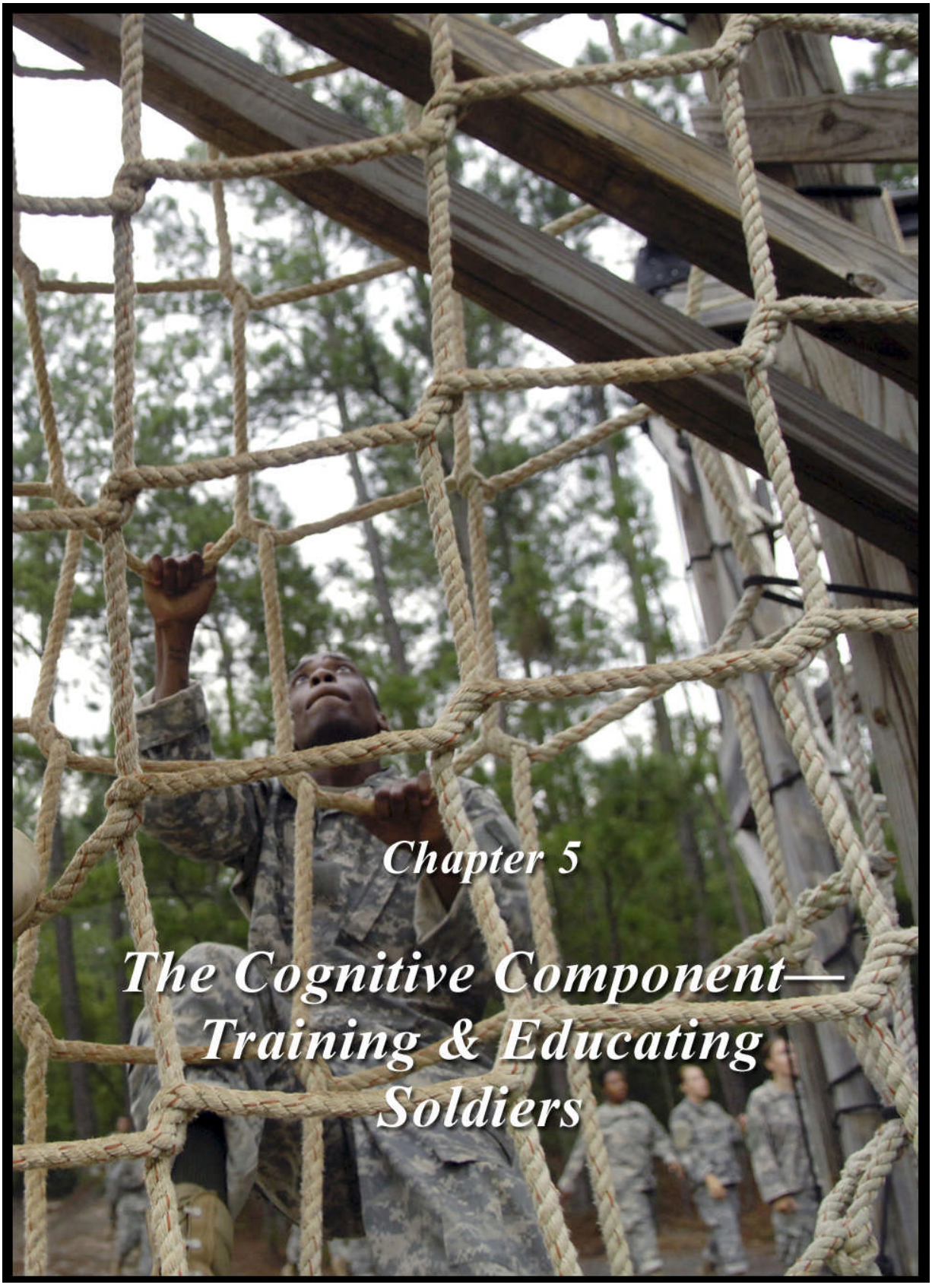
Lieutenant Woodrow W. Millsaps was a member of the 508th Parachute Infantry Regiment of the fabled 82nd Airborne Division during World War II. His awards for his actions during the D-Day landings include the Silver Star. Many of his compatriots landed in marshes and drowned in spite of their great physical condition. Woodrow W. Millsaps IV is a fictional character who will survive his ordeal to rejoin his unit. His story points up the incredible importance of not only physical fitness, but also training and determination. Millsaps drew on both conditioning, inner fortitude, pride, tradition, and ingrained training to save his life. Extrapolation to the larger force of this very individual example allows the force to get its full message. Leaders lead by example. Soldiers learn from each other and those they trust and admire. Woody the Fourth never gave up, and his fellow Soldiers would not give up on him either or leave him behind.

Required Capabilities

- The future Modular Force requires systematic and progressive physical development programs that provide a universal development and assessment of overall physical fitness, as well as MOS specific training and assessment tools to address the needs of each specific MOS across the operating and generating forces.
- The future Modular Force requires a physical development trainer's program to provide resident expertise within each battalion and higher organization. The physical development trainer provides unit leaders with increased awareness of training techniques, physical fitness program design, and consistent and reliable assessment tools.
- The future Modular Force requires highly educated and skilled practitioners to design, administer, and monitor the Army's physical program.
- The reserve components of the future Modular Force require fully funded, easily accessed high quality fitness facilities to allow Soldiers to train while not on military orders.
- The future Modular Force requires the ability to conduct physical training while deployed to ensure Soldiers are physically capable to endure the rigor of deployment.
- The future Modular Force requires an increase in funded educational programs to provide advanced civilian and military educational opportunities in exercise physiology; sports medicine, kinesiology, and sports fitness (for example, brigade surgeons completing sports medicine fellowships, a kinesiology major at the USMA).
- The Army requires training and advice in good nutrition and the services of assigned nutritionists.

Questions for Further Examination

- What physical development program will provides appropriate standards and levels of physical competence that match the demands of Army engagement and help define training practices to ensure the appropriate level of physical development?
- What is the most cost effective method to evaluate potential recruit fitness potential?
- What future fitness programs will better enable Soldiers to maintain physical fitness during operational deployments?
- What is the best method to evaluate Soldier's physical fitness in a variety of settings (home station, deployed, and post deployment)?
- What are the best training techniques for physically preparing Soldiers to adapt quickly to changes in terrain and climate conditions?
- What are the challenges and solutions associated with the "enforcement" of the physical element of the future concept for the human dimension described in this chapter, specifically as they relate to the reserve component?
- What is the impact of over-the-counter medication designed to enhance performance on future Soldier behavior?



Chapter 5

The Cognitive Component—Training & Educating Soldiers

The Nation that makes a great distinction between its scholars and its warriors will have its thinking done by cowards and its fighting done by fools.

Thucydides

Chapter 5
The Cognitive Component—Training and Educating Soldiers

5-1. Introduction

The cognitive component of the human dimension consists of the critical competencies required of Soldiers in the future OE and the processes and tools needed to build those competencies. It is about learning, thinking, and application. Cognitive development comes from many resources, but the ones most readily influenced by the Army lie in modular, tailored, accessible, and realistic training and leader education (TLE). Flexibility and precision characterizes future training and education. Soldier centered, it will provide relevant information and training while enabling adaptive learning when and where needed throughout their careers.

> The new learning environment should center on the student, not the institution, with every learning opportunity crafted to ensure that the right methods, both pedagogical and methodological, are used to give the military learner just what is needed....
>
> Major General (Retired) Robert Scales, 2006, p.42

The cognitive component complements the moral and physical components discussed in earlier chapters. It is the integration and interaction of these three, which truly defines the Soldier, and the profession of soldiering. This chapter discusses the challenges inherent in shaping the youth of the future through training and education. Techniques and processes that produced the successful infantryman of World War II and the mechanized warrior of the cold war and Desert Storm were in some measure ill suited to the challenges of the current conflict in Iraq and Afghanistan. Innovation in TLE must be responsive to the changing OE. This will require the Army to work hand in hand with experts in learning science, training, and leader education to find and integrate effective and efficient learning approaches. Promoting advances in learning S&T will make the TLE system an evolving and adaptive program.

The following sections describe Soldier competency requirements that flow from the future OE and key elements of the envisioned future precision TLE system. The chapter ends with a brief discussion of the need for S&T research, experimentation, and studies to provide the discoveries and deepened understanding needed to realize the future vision for TLE, and the risks associated with not realizing this vision.

5-2. Implications of Future Changes for Training and Leader Education (TLE)

The Future Operational Learner

The introductory chapter describes many of the different characteristics and attitudes of the millennial generation that will most affect the Army in 2015 to 2024 and how the expectations of this future generation about jobs and careers are different from those of their parents and grandparents. In spite of these differences, the Army can be certain that future learners will share many of the needs and preferences of today's adult learners. For example, they will have a need to know why learning is required, a need to direct their learning, a need to contribute their

experiences to the learning situation, a need to apply what they have learned to solve real world problems and a need to feel competent and experience success throughout the learning program.[93]

What is far less certain is whether and how future learners will be "unique learners," different in identifiable ways from today's learners, and the implications, if any, for the Army. For example, some believe that the brains and thinking patterns of this generation of computer-users may be different from those of previous generations. Marc Prensky posits that people brought up with computers:

> …think differently than the rest of us. They develop hypertext minds…[T]hinking skills enhanced by repeated exposure to computer games and other digital media include reading visual images as representations of three-dimensional space (representational competence), multidimensional visual-spatial skills, mental maps,…inductive discovery…attentional deployment, and responding faster to expected and unexpected stimuli.[94]

According to Prensky, a unique feature of future learners is that they may choose to pay attention in bursts rather than continuously.[95] He states that they: "Tune in just enough to get the gist and be sure it makes sense." Numerous sources acknowledge this propensity for millennials to pay attention in "twitch speed" bursts while multitasking, and bricolaging (or piecing together information). This has in turn led to a concern that the millennials' thinking may be characterized by short attention spans and a lack of reflection.[96] If true, the latter characterization would be especially troubling given that reflective thought contributes to adaptive thinking and adaptive thinking is a critical future Soldier competency.[97] However, others have suggested that the reported short attention spans and lack of reflection among millennials merely signify that these learners possess an invaluable attribute—the ability to evaluate information rapidly.[98] Puchta and others point out that the most valuable skill in the twenty-first century probably won't be attention span, but rather the ability to multitask—another characteristic that may be more common among millennials.[99]

Others state that the bulk of current empirical evidence is not significant enough to justify changing how the Army should approach training and education of millennials. Eventually, research may resolve the uncertainty about some of the characteristics of millennials, and their pros and cons.[100] In the meantime; TLE products designed for millennial Soldiers will need to reflect our best understanding of that generation's preferences. Considering their near lifelong immersion in the digital world, it follows that these future learners may prefer independent learning experiences that incorporate fast-paced and visually intensive instruction, that they may need frequent interactions with corresponding feedback, and have a strong desire to experience a sense of accomplishment. Due to their familiarity with the Internet and cell phone technology, they also may have learned to rely heavily on collaboration with their peers as a part of their learning experience.

These expected differences in future learners may drive the Army to reduce time, location, and source boundaries on learning for future Soldiers. The Army must acknowledge and accommodate learning as the accumulation of knowledge from a variety of places, including knowledge banks, experience, education, and training, with no set beginning or end. Learning for

millennial Soldiers must truly be life long. At the same time, the Army will need to adapt constantly to trends in training, teaching, and learning.

Operational Implications—What Future Soldiers Will Need to Know

Major General (U.S. Army, Retired) Robert Scales describes the emergence of the importance of the human dimension as the coming "human and biological era of war," when mission success may be determined by individual conduct, character, mental agility and intuition rather than superior technologies.[101] The trend is for the center of gravity to shift from governments and armies to the perceptions of populations. The importance of cultural competence and the ability to build trust with the indigenous population may be as effective in protecting Soldiers as body armor.

Soldiers must continue to be prepared to confront adversaries who do not follow a set pattern, who rely on surprise, and who work to exploit our weaknesses. Knowing the enemy will be more difficult as the enemy blends with non-combatants. Rapidly made decisions at the tactical level must overmatch an adversary's ability to adapt. Training and education must enable Soldiers to be cognitively agile.

Joint and Army commanders will quickly form and disband hybrid organizations to meet the functional requirements of specific missions. Organizational alignments will cut across Services, active and reserve components, nongovernmental organizations, interagency, and coalition partners. Individuals and organizations must be flexible as they work together in collaborative information environments across the range of operations. Effective operations among organizations will rely heavily on network connectivity and processes that will take place physically and virtually. Training must enable Soldiers to understand the roles, culture, and goals of other joint, interagency, and multinational (JIM) organizations, quickly build effective working relationships within tailored organizations, and apply collaboration and other network tools to operate as a cohesive organization.

There is increased emphasis on the human terrain, which defines victory by capturing the psycho-cultural high ground rather than the geographical high ground.[102] TLE must enable Soldiers to shape the perceptions and win the acceptance of local populations using their cultural competence and effective interpersonal, language when possible, and social skills.

The Army is investing significantly in the development of new and expanded systems. The true value of these systems will be a direct function of how Soldiers employ them. Training Soldiers to exploit full system capabilities optimizes system potential.

The necessity to train and educate Soldiers for any contingency on the spectrum of operations not only demands personal adaptability, but also increases the scope and complexity of the training challenge. The training institution must train a broader range of skills while available training time is unlikely to increase. The Army force generation (ARFORGEN) model, which seeks to discipline the resourcing and prioritization of unit deployments, provides limited windows of time within which to tailor unit training to a specific core and/or directed mission essential task lists.

Adjusting to this emerging trend includes formal education programs. In addition to commissioning level programs in ROTC and at the Military Academy, the Army must continue to encourage and sponsor opportunities for Soldiers to pursue undergraduate and post graduate education with appropriate emphasis on cultural and behavioral sciences.

Future Competencies, Knowledge, Skills, and Abilities

The nature of the future OE and the characteristics of future learners have far reaching implications for the design of the Army's future TLE system in terms of performance criteria, as well as how the system performs the training and education. The first consideration is the extremely broad and complex nature of the overall set of competencies, skills, and knowledge that TLE must impart. In the anticipated future era of persistent conflict, with the potential for shrinking Army work force, the Army must train Soldiers and leaders of all ranks to participate in every demand of full spectrum of operations.

The ARI underscores this problem.

> The need for effective and efficient training strategies and the related human dimension challenges are perhaps greater than ever. Leaders at all levels are increasingly responsible for planning and executing missions previously handled at higher echelons. Soldiers must make difficult decisions in time-constrained, complex situations. Soldiers are performing critical tasks outside their branch or unit core skills, but are still expected to maintain proficiency on the core tasks.[103]

Consequently, the notion of effectively training every Soldier to perform every skill required to accomplish full spectrum of operations is unrealistic. A greater focus on a collective capability may be a better approach. In this approach, each Soldier contributes something unique and essential to create the overall capabilities of teams, units, and larger organizations to advance "the nation's security interests over a very wide and unpredictable range of operations, including many activities that call for abilities well beyond what might be considered traditional military skills."[104] This approach in no way diminishes the difficulty of what the TLE system must accomplish. What it does is broaden the focus to address another vexing problem, determining the right mix of core, leader, and specialty skills required by a given Soldier at different levels, and the right mix of those skilled Soldiers in teams, units, and larger organizations. Factoring in

the differing levels and types of skills contributed by the Army Reserve and JIM partners further complicates the picture. Ultimately, we can be certain that in the future, individual Soldiers must possess a much broader skill set, if for no other reason than to cope effectively with the uncertainty of the OE. What is not clear, and must be the subject of further study, is how to achieve the right balance between individual and collective capabilities within the context of an unpredictable and rapidly changing OE. Further research needs to seek the right balance between skill dimensions such as cognitive agility and adaptability with more practical needs such as knowledge of and conformity to accepted TTPs. The exploration of such tradeoffs will be essential for the formulation of realistic TLE policies in many domains, including TLE, in order to achieve the optimal mix of Soldier skills for success in the future OE.

Warrior Skills, Ethics, and Values

To face future learning challenges, the Army will "retain doctrinal bedrock principles and imperatives"[105] first, building a Soldier's foundation of fundamental knowledge and skills, followed by the expansion of knowledge and skills in subsequent training and education as needed to deal with an increased scope and depth of responsibility will continue as the basis of leader development. The Army must build Soldier's skills and knowledge upon a center core of warrior skills and ethos. Future training reinforces and builds the warrior ethos. The development of other professional identities related to peacekeeping, nation-building, and policing functions will be just as important attributes as traditional conventional war concepts of closing with and destroying the enemy.

As emphasized in chapters 1 and 3, a fundamental and unchanging focus of future training and education must be this core Army values and ethics. These values and ethics prescribe conditions that facilitate trust, interdependence, and cohesion among Soldiers, but also set high standards for how the Army will interact and affect perception with individuals outside of the Army.

> The armed forces of the world are under increasing public scrutiny, and if their members behave in a fashion that the public deems morally reprehensible it may destroy public support for their mission. We live in the era of the "strategic corporal." Immoral behavior by even the lowest ranking Soldier can have a strategic effect, as witnessed by the impact of the images of Private Lynndie England, a "strategic private," at Abu Ghraib prison in Iraq.[106]

To be successful, "…ethics training needs to be seen as something other than a burdensome compulsory duty. Rather it needs to be integrated into military training from a very early stage as a fundamental part of the process of developing professional Soldiers."[107] Current ARs require provision of initial ethics and values training to Soldiers at basic combat training and to officers in the Basic Officer Leadership Course. Regulations mandate annual sustainment training in units. In the future, it is likely that values and ethics training will assume an even higher priority and integrate into day-to-day training and education. More innovative approaches to values and ethics training will emerge. Values and ethics issues relevant to the operational situation of the moment will merge into training scenarios.

Multi-skilled Leaders

In addition to a current and future focus on the early development of warrior skills and values, the Army defines the future multi-skilled leader in the recent Army Game Plan:

> The challenges posed by the twenty-first century security environment drive our vision of the force we must become to continue to accomplish our mission….We are developing qualities in our leaders, people and our forces to enable them to respond effectively to what they will face. The leaders we are creating must be able to learn and adapt in ambiguous situations in a constantly evolving environment.[108]

Figure 5-1 presents the envisioned required attributes of the future multi-skilled leader.

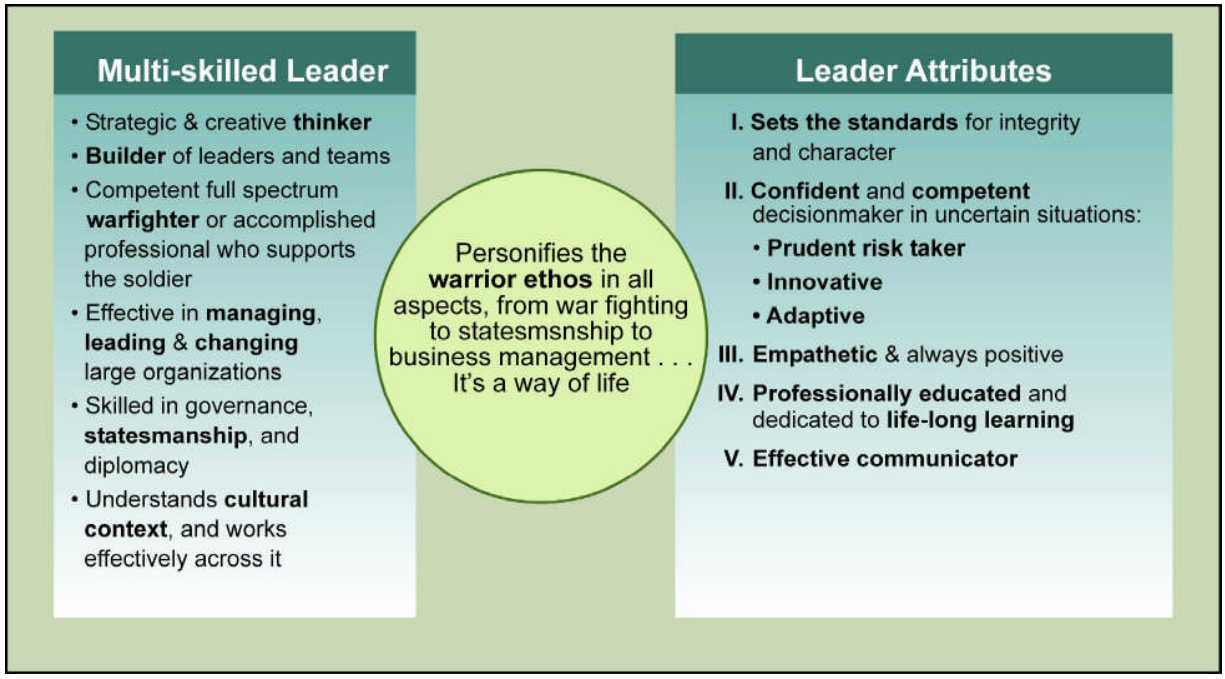


Figure 5-1. Growing Army Leaders

Soldier Competency Challenges

This section discusses the Soldier and leader competencies needed for the future OE. These competencies are representative of the range and cognitive and affective complexity of future Soldier and leader skill requirements.

Perhaps the most fundamental requirement of future Soldiers will be acquiring and mastering tactical and technical competence. This is the very essence of the profession of soldiering and a necessity for success in future engagements, battles, and campaigns. Future Soldiers must possess the array of tactical and technical expertise needed to lead or participate in a future force optimized for the full spectrum operations. The Army must rapidly disseminate lessons learned to the Soldiers, as future tactics evolve in response to changing equipment and operational

requirements. Tools that enable the quick and continuous updates of tactical skills training and knowledge banks will continue to be vitally important.

In addition to changes in tactics, Soldiers must adapt easily and rapidly to the introduction of new, highly sophisticated equipment and equipment improvements. True technical adaptability will require that Soldiers possess a deep understanding of the underlying principles in their field of expertise that cut across equipment systems. Future Soldiers will also operate in an environment where synchronization of equipment resources, both old and new, will be essential to optimize operational effectiveness. For example, the synchronized use of positioning systems, unmanned robotics, battle tracking systems, and real time video streams, as well as other systems, will be important for situational awareness of Soldiers at all levels. Further complicating technical training is the fact that Soldiers often operate outside their areas of primary expertise for extended periods causing technical skills to atrophy through disuse. The future training system needs to discover innovative ways to train, refresh, and update the broadened array of technical skills.

The Army Training and Leader Development Panel (ATLDP) Officer Study, 2003, determined that future leaders must possess the "enduring competencies" of self-awareness and adaptability. The study defined self-awareness as understanding how to assess one's own abilities, knowing one's own strengths and weaknesses in the OE, and learning how to correct these weaknesses.[109] The ARI explains why being self-aware is advantageous:

> Leaders who can accurately assess their strengths and weaknesses have a performance advantage over those who do not possess such self-awareness. Self-aware leaders are able to capitalize on their strengths and compensate for their weaknesses to achieve performance goals and are better able to take advantage of development opportunities.[110]

A related concept is that of "metacognition," defined as, "thinking about one's thinking." Again, ARI points out the benefit: "Leaders who engage in metacognition during learning activities are able to take a step back and think about the strategies they are adopting to accomplish personal and external learning objectives, which in turn enables them to adjust their learning strategies to better accomplish their goals."[111] The greatest value of such thinking in future may be in facilitating the identification of new tactical and operational relationships and ideas. Metacognition is more than a cognitive exercise. It is an ability to relate specific situations to previous experiences and, in turn, to extrapolate parallels that can assist in choosing new informed actions.

Adaptive capacity allows leaders to respond quickly and intelligently to constant change. It will be integral to effective Army leadership, at increasingly junior levels, as long as the Army continues to operate in unstable, diverse, and unpredictable environments.[112] Soldiers and units will need to be adaptable as well, and a deeper understanding of these needs and their implications for TLE will be essential. TLE can foster adaptive performance in leaders; creating adaptive leaders may ultimately have utility for Soldiers and Soldier teams and units. Adaptable leaders must possess many higher order cognitive skills. These include the ability to synthesize information rapidly and make intuitive assessments of situations, the ability to conceptualize

courses of action rapidly, the ability to maintain situational awareness on the move, the ability to transition smoothly from kinetic to non-kinetic events within a rapidly changing spectrum of operations, and the ability to convey their intent to subordinates quickly and effectively. While the continuing importance of leader adaptability is a certainty, training leaders to be adaptable will continue to be a challenge. Due to the differences among leaders and their jobs, and the infinite numbers and types of situations requiring adaptive behavior, training procedures must be flexible and inculcate a generic capacity for adaptability.

Future Soldiers must excel in the interpersonal skills required for leadership. FM 6-22, defines leadership as an influence process, which suggests leadership occurs primarily in the context of interpersonal interactions. "Interpersonal skills, such as communication, managing the perceptions of others, motivating Soldiers, and interpreting nonverbal behavior, play an integral role in effective leadership."[113] Interpersonal and social skills, including expertise in group dynamics and understanding non-verbal behavior, will play an increasingly important role in the success of Soldiers and in Army combat readiness. A leader's interpersonal skills will largely determine his or her ability to foster unit cohesion, mentor Soldiers, work effectively with persons ranging widely in background, age, personality and work style, and lead successfully when deployed to foreign countries. A Soldier's interpersonal skills will largely determine his or her success as a follower, team member, and representative of the U.S. Army when deployed. Soldiers must also be able to understand and manage their own emotions and to understand and help subordinates and peers deal with the impact of emotions on individual, team, and unit performance. Emotion management skills must be integrated into the training and education system based on a thorough understanding of how, when and where these skills can best be trained and sustained during a Soldier's career.

Environments of dispersed, decentralized decisionmaking challenge cognitive capacity as Soldiers operate in and find themselves engaged with the enemy in competitive learning. "Critical thinking is the deliberate, conscious, and appropriate application of reflective criticism to improve judgment."[114] "Creative thinking is the ability to conceptualize and apply new and effective approaches to circumstances about which we have limited knowledge or understanding."[115]

Leaders, and to a lesser extent all Soldiers, must engage in systems thinking—seeing the big picture.[116] Systems thinking is, "…a discipline for seeing wholes. It is a framework for seeing interrelationships rather than things, for seeing patterns of change rather than static 'snapshots.'"[117] ARI points out why systems-thinking is an important competency for Army leaders:

> …leaders who engage in systems thinking are able to look at a situation from a macro-level perspective in time and space, understanding the interrelationships among variables and key elements in a dynamic structure. Systems-thinking allows individuals to infer the causes of events, to forecast events in the absence of complete information, and to determine how to best influence a situation through manipulation of situational parameters. Systems-thinking is highly relevant for Army leaders, particularly as the social-political environment

> intertwines with the operating environment and as Army leadership becomes a more socio-technological process.[118]

In today's environment and in the projected OE, "…culturally literate Soldiers and culturally competent officers are…fundamental."[119] There are three primary contributors to cultural competence: Cultural awareness, which is general understanding of another culture that facilitates openness and flexibility in dealings with people from that culture; cultural knowledge, which is familiarization with selected cultural characteristics, history, values, belief systems, and behaviors of members of the cultural group; and cultural sensitivity, which is the realization that cultural differences as well as similarities exist with out assigning values (for example, good or bad, better or worse). Cultural competence integrates these abilities and brings them to bear to operate effectively in a different cultural context (for example, putting principle into practice).[120] Cultural competence underlies a Soldier's or leader's ability to understand, communicate and coordinate effectively with diverse groups of people including joint, coalition, and interagency personnel, U.S. and foreign civilians of all walks of life, and the media.

Future leaders must excel in their ability to build rapidly adaptive, cohesive, and high performing teams. Future Soldiers must excel in their ability to be effective team members and effective followers. However, the geographic space for practicing leadership and followership will continue to expand from a human scale that facilitates face-to-face interpersonal contact, to one in which the information rich and technically charged environment will typically create physical remoteness. Since team members may often be geographically distributed, there will be a heightened need for shared conceptualization of the commander's intent and teamwork built on trust. Information age communications methods (on demand teleconferencing, instant messaging, virtual collaboration, email, text messaging, podcasting) will become the norm for interactions among team members and between leaders and their teams. Teams and TFs will form and operate without opportunities for face-to-face encounters between leaders and subordinates. Leaders and their followers must learn the principles of effective teamwork at a distance and understand the roles and impacts of various communication media in building effective distributed teams:

> In the future, leaders will continue to work in their traditional teams/units, but also may work on other types of teams, such as joint, multinational, or temporary teams. In non-traditional teams, team member roles must be negotiated, norms

> for conducting group activities constructed, collective objectives determined, and leader power established.[121]

Future Soldiers must possess the array of tactical and technical expertise needed to lead or participate in a future force optimized for the full range of military operations. New equipment systems, such as unmanned ground and aerial systems will spawn numerous, continuing changes in tactics. Stability and reconstruction operations, place a premium on new tactical skills including those required for negotiation, conflict resolution, the employment of indirect or nonlethal effects, dealing with corrupt/irrational/desperate agents, countering anti-U.S. propaganda, and retaliation to terrorist acts. As future tactics evolve quickly in response to changing equipment and operational requirements the lesson learned must be rapidly disseminated to Soldiers. Tools that enable the quick and continuous updates of tactical skills training and knowledge banks will be vitally important. This understanding will contribute to Soldiers identifying new ways to apply technology—often generating ideas that precede or foster new technological solutions to tactical challenges.

Future Soldiers also must competently employ a wide range of new information technologies and data systems in a networked environment, where leaders must be prepared to operate and exploit network capabilities. The Army will employ a single, integrated battle command system and intelligence, surveillance, and reconnaissance architecture that will link to JIM forces, where the most typical type of communication will be digital. The Army must provide leaders educational and training opportunities that broaden their understanding of leadership and battle command in the net-centric strategic, operational, and tactical environments. Trained leaders will discriminate between relevant and non-essential information in order to make good decisions and avoid information overload. An underlying assumption of net-centric operations is that improved information sharing across multiple levels of echelons of command and control (C2) will result in improved shared situational understanding and synchronization of effort.[122] However, only well-trained Soldiers will be able to employ information superiority fully to create decision superiority.

> As we, the leaders, deal with tomorrow, our task is not to try to make perfect plans. Our task is to create organizations that are sufficiently flexible and versatile that they can take our imperfect plans and make them work in execution. That is the essential character of the learning organization.
>
> *Gordon R. Sullivan & Michael V. Harper (1996)*

5-3. Units as Learning Organizations

The Army's future successes or failures will depend heavily on individual Soldiers and their abilities. However, success in the anticipated future OE will also be highly dependent on the collective effort of individuals. In the past, units as a whole won or lost wars. The wars of the future will be no different in this respect, although the size of element necessary to influence the outcome of the war may be much smaller. The wars in Iraq and Afghanistan, as well as the 2006 Israeli War in Lebanon, have shown the increasing dependency on and effectiveness of smaller units. In the future, adaptive, thinking adversaries, diverse missions, and the frequency of change will continue to challenge the effectiveness of smaller units.

One of the many competencies needed by units to deal effectively with the uncertainty is the ability to learn. Successful future teams and units operating in asymmetric environments must possess the best characteristics of "learning organizations." A learning organization is "human beings cooperating in dynamical systems that are in a state of continuous adaptation and improvement." A recent Army War College paper presents a fuller definition with particular relevance for the Army.

> A learning organization is one in which organizational thought—whether it is routine planning or higher level decisionmaking—is led by leaders that facilitate a dialogue that values reflective thought, new patterns of thinking, and a suspension of assumptions.[123]

"Organizational learning occurs best when the barriers to creativity are reduced, members of the organization are encouraged to be creative, and organizational culture supports innovation."[124] Leaders and members of successful learning organizations are aware of their natural tendency to think in traditional ways and take the time to analyze their own reasoning and views to generate new ideas and group knowledge.[125] They attempt to grasp complex new issues before making decisions. Group members are encouraged to contribute candidly. This "requires that leaders have enough confidence and self esteem to truly empower their subordinates."[126] Openness to new ideas and ways of thinking and operating characterize successful learning organizations. Openness enables them to adapt rapidly to changes in their environment as well as to changes to their membership, such as those that occur when rapidly creating hybrid or tailored organizations for a specific mission.

Another important characteristic of effective learning organizations is the ability to develop a shared understanding among members of the organization of their environment, their goals, and their tasks. "This shared understanding allows them (teams) to rapidly adapt to changing circumstances with little to no loss in effectiveness and comes at little cost in energy, time, and other critical resources. Training and effective leadership are critical elements in developing this shared understanding."[127] Shared understanding, as an example, underlies the ability of organizations to restructure themselves as needed to succeed in dynamic environments. Research has shown that teams that are able to restructure themselves (for example, from centralized authority to decentralized authority to cope with unpredictable environments) are more successful than teams that do not adapt.[128]

True learning organizations have many of the characteristics that are essential for unit success in the future OE. TLE must prepare Soldiers to create learning organizations and participate as successful leaders and members of those organizations. The transition to learning organizations requires that leaders at all levels understand the characteristics and advantages of such organizations, and that "…the best way to change the behavior of leaders is to first identify the desired behaviors of a leader in a learning organization (and then teach these qualities through officer education and self-development programs)."[129] TLE must also support organizational learning by making training and knowledge available to units on demand.

In order to develop true learning organizations the Army must study successful military and civilian examples. This study can better inform leaders on how to recognize and develop

learning and adaptive organizations, and suggest ways to incorporate successful methodologies in TLE.

5-4. Future Training and Education Approach

The concept for how we will train and educate future Soldiers, leaders, teams, and units on the range of competencies and skills discussed above continues many of the current TLE practices and improves upon others. It also introduces new approaches in keeping with the needs of the future operational Army and future TLE capabilities enabled by advances in technology and learning science. The overall approach is inherently complex, attempting to address the needs of Soldiers at all stages of their careers—individuals as well as teams and units, in all locations, across the range of initial entry, branch specialty, leader education, and collective skills required for full spectrum operations. The scope of the challenge is immense and the wide variety of skill requirements and training environments requires a diverse and innovative set of solutions.

The envisioned approach can be characterized generally and simply as a continuing movement toward precision in learning—an effort to provide tailored, relevant, appropriately realistic training, education or knowledge, to Soldiers, teams and units when and where needed. The approach acknowledges changing definitions of "learning" and "knowing" resulting from the information explosion and real world experience of the millennials. Learning is becoming a process of interrelating information from different knowledge domains reflecting the changing nature of knowing—not merely the mastery of facts, but the ability to access and integrate new information precisely when needed. In addition, the approach recognizes that learning must be a lifelong process and that the TLE system must transform to make lifelong learning a reality. The key ingredients to enable precision learning for the future includes expanding and accelerating leader education and development, improving accessibility of TLE, providing realistic training, providing responsive training development and delivery, training JIM, managing unit performance, and applying human performance improvement (HPI) techniques.

Expansion and Acceleration of Leader Education and Development

The future professional military education system will fully embrace the principles of lifelong learning, thus ensuring that officers and NCOs receive the best possible mix of operational assignments and resident and distributed education. FM 6-22, defines lifelong learning as the choice to pursue knowledge, the comprehension of ideas, and the expansion of depth to progress beyond a known state of development and competency. The ATLDP Officer Study Report to the Army, 2003, suggests that adoption of lifelong learning principles will help the leader and the unit to:

> …become aware of the need for new competencies in rapidly changing environments; know how to develop these new competencies; transfer the learning and associated competencies to other leaders and units; and, institutionalize learning in the Army's culture and systems to increase self-awareness and adaptability.

According to the current model of leader education and development, the three domains that shape the critical learning experiences throughout a leader's career (institutional training and education experiences, training and experience in operational assignments, and self-development) complement and reinforce each other. The leader gains knowledge and understanding from the institutional experiences, which transfer to the operational assignment in a continuous cycle of progressive and sequential events in the leader education and development process. Operational assignments provide the best opportunities to learn from the "school of hard knocks" and interactions with skilled leaders, peers and subordinates, and practice self-discovery learning. As a leader's career progresses, professional military education and functional training further develop reasoning, critical thinking, and operational skills for positions of increasing responsibility. Self-development occurs wherever and whenever the individual participates in structured independent learning activities that expand his or her capabilities as a member of the profession of arms.

The evolving future leader education and development model (fig 5-2) keeps the best elements of the current model but, in accordance with the lifelong learning paradigm, increases the role and responsibilities assigned the self-development arena. Self-development will evolve to a meaningful competency-based program that encourages individual initiative, results in improved leader focus on the profession of arms, and enables a "train ahead" approach to development allowing motivated performers to shape their speed of advancement. There will be at least six key enablers for effective lifelong learning. Distributed learning (DL) is the first. If the ATLDP recommendations regarding DL are implemented, the benefits of DL as part of the life long learning process will be communicated and understood by all leaders, DL will be deliberately integrated into active component leader education (building on success in the reserve components), and much DL will be focused on providing the self-directed, self-development activities leaders require. Mobile training teams (MTTs), which bring learning materials to the audience in the field, provide a proven form of distance learning. An essential enabler will be an info-structure that creates a network-enabled adaptive learning environment with anytime, anywhere, access to learning content.

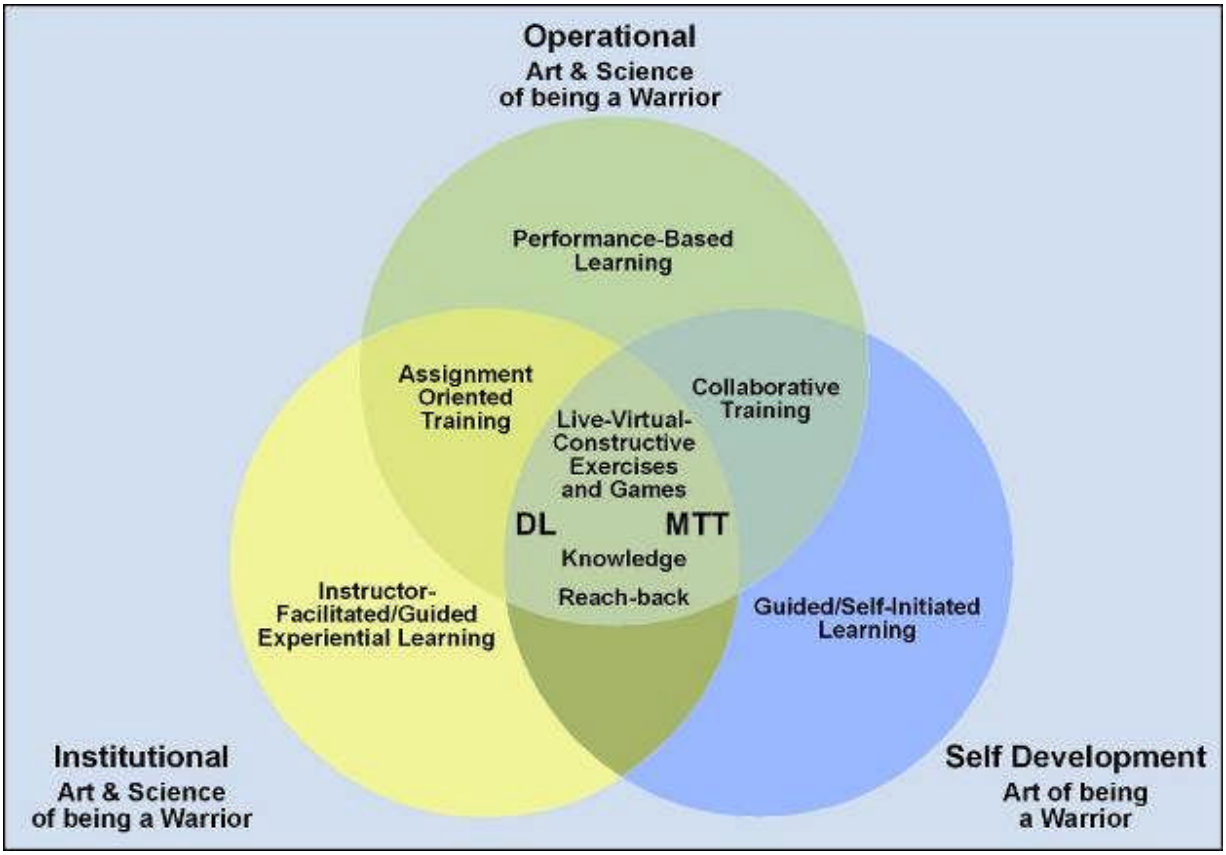


Figure 5-2. Evolving Model for Future Leader Development and Education

Second, implementation of lifelong learning will depend on the availability of a comprehensive body of knowledge or relevant content and an accompanying knowledge management system. To support self development, Army schools and centers will take on additional responsibilities as "knowledge centers" supporting the professional education of leaders, both at home stations and while deployed. Capabilities such as the joint knowledge development and distribution capability will make information on joint assignments readily available to leaders when and where needed and contribute to the development of the joint culture called for in the *Joint Training Functional Concept*. The ATLDP report, 2003, has called for the Army to, "Develop, fund, and maintain an Army Warrior Development Center using IT where Soldiers, units, and leaders can go to find standards, training and educational publications, assessment and feedback tools, and access distance and DL programs for self-development and life-long learning."

A third essential ingredient will be leader assessment tools that support leader selection and promotion, and self assessment processes and tools that enable leaders to self-monitor their comprehension and mastery of new skills and knowledge. For example, the development and use of multisource assessments that provide confidential, anonymous feedback from peers, subordinates, and superiors will help leaders increase awareness of strengths and developmental needs. Future research will find ways to maximize effectiveness of the feedback to leaders.

Fourth, the Army may need to compress the leader education and development timeline for interpersonal and cognitive skills, while keeping the process repetitive. As noted earlier, the future OE will continue to demand competence on complex cognitive tasks from younger, less experienced officers and NCOs. Yet, research on human performance has shown that an individual typically needs about 10 years to master a complex set of skills. This does not suggest that Soldiers of all ranks require ten years to become proficient in their specialties, but rather acknowledges that *mastery* and *complexity* will take longer if the Army does not find ways to accelerate the learning process. Finding and applying technological or other means of compressing learning times, to the extent possible, will be a top priority for the future leader education and development system. Leaders must have on demand access to experiential learning opportunities such as virtual vignettes, with automated coaches and mentors that enable them to practice the adaptable decisionmaking skills needed to react quickly and instinctively to new operational situations. The Army needs to invest in training exercises and materials that will develop cognitive and interpersonal skills in a rapid but effective way. Future experimentation, studies and research in learning S&T can make significant contributions by identifying additional means of accelerating learning and providing the realistic virtual humans needed to serve as coaches and mentors.

Fifth, the Army needs to find ways to intensify learning in operational assignments. "A balance between operational and educational experiences provides the best method to train Soldier and grow leaders."[130] Future S&T research must explore ways to increase the learning value of everyday experiences, especially in operational assignments. It is unlikely that approaches will be prescriptive (for example, dictating trained tasks). Instead, they will focus on increasing awareness of experiential learning and taking advantage of and documenting learning that takes place naturally throughout the workday. Army surveys consistently show that the best opportunities for leader-development are in the context of the real duties performed by leaders.

Sixth, as the RAND Corporation has recently argued in its report, *Something Old and Something New—Army Leader Development in a Dynamic Environment*, leader education, at the Army's schools and through graduate civilian education, continues to play a critical role in preparing leaders to meet the challenges of the future OE.[131] Education provides the cognitive grounding that contributes, along with operational experience, to effective decisionmaking in ambiguous operational situations, and does so within an environment that is conducive to discussion among peers, and free exploration and contemplation of ideas.[132] This somewhat traditional role of leader education takes on even greater significance given the current and anticipated future OE where highly developed decisionmaking skills are of paramount importance. Leader education must also address increased breadth of knowledge and perspective. The RAND Corporation has concluded that, "…familiarity with external institutions and cultures (for example, other services, joint commands, and government agencies… is achievable only through contact with external institutions, and its importance argues for greater exposure of officers to graduate education and broadening assignments outside the Army."[133] This theme is echoed by General David Petraeus in his article, *Beyond the Cloister*, in which he argues that, among other reasons, civilian graduate education is important for Army leaders is because there they can discover how diverse and divergent views can be.[134] The Army must consider providing leaders with more dedicated learning time in school and unit settings,

providing greater opportunities for advanced civil schooling, and broadening professional military education by increasing opportunities for exposure to other institutions and cultures.

Finally, in addition to the six enablers above, the future leader education and development system should provide shared learning opportunities. Currently "the Army misses shared training opportunities because the officer, NCO, and warrant officer education systems are stove piped and not interrelated."[135] In the future, the leader education system will provide shared training and educational experiences that will better prepare officers, NCOs and warrant officers to work together effectively. The end state of the transformed leader development and education system will be leaders who are confident, diligent, and resourceful learners able to self-assess and recognize gaps in their knowledge and skills and seek out new information to build expertise over time.

Improved Accessibility of Training, Education and Knowledge

The future training system must be as responsive as the future Army itself, anticipating Soldier, leader and unit training and information requirements to make the right training and information available on demand. Training will reflect the global nature of Army operations as part of JIM missions and the need to deliver, on a push and pull basis, appropriate, dynamic, tactically realistic training to units during deployment, reset, train, ready phase, and redeployment, as well as to Soldiers in the institution, and at home station. Distributed training will use a common operating environment easily accessed by Soldiers, whenever and wherever needed. The Army must exploit advanced training technologies and processes to integrate individual and collective training during routine operations.

The future Army will rely heavily on well-designed DL as a means of increasing training accessibility, tailorability, and efficiency. Use of DL to individualize training to the needs of a specific Soldier and his or her duty assignment will reduce the time and cost to achieve training objectives. The Army will frequently employ a blended approach to learning that will combine synchronous DL (for example, video tele-training and audio conferencing) and asynchronous DL (for example, students taking on-line courses at their convenience) with live and face-to-face training as appropriate. It is likely that the Army's future experience will parallel that of future educational systems and training in industry where both organizationally planned and personally initiated training are essential. To paraphrase a recent article in the publication *Chief Learning Officer*, in tomorrow's Army despite the demanding future OE classroom time will still be valuable for selected learning purposes.[136] However, the Army will have to adapt to the times and to emerging educational technologies and implement new and more effective blended learning approaches. Classroom learning will no longer consist of isolated events meant to transfer information from trainer to trainee. Augmented by digital resource materials, face-to-face instruction will be part of an extended learning process that is student and team centered and incorporates on-line structured communities of practice that enable learners to converse with peers. By blending these approaches the Army will enable Soldiers to learn in ways that suit them best, and meet future learning challenges with the most effective and flexible solutions possible.

In the future, knowledge management and communities of practice (like the current battle command knowledge system) will work hand-in-hand with training and education to ensure Soldiers have the knowledge they need when they need it. Knowledge management principles capture, preserve, and make available to Soldiers throughout the Army the individual and collective expertise of warfighters to support their learning and decisionmaking. Knowledge banks developed and supported by Army institutions, joint knowledge development and distribution capability, and an extensive array of government, academic and commercial sites available over the Internet, will meet Soldiers' needs for every possible type of information on demand. No matter what Soldiers are called upon to do and know, from assisting locals to plant a garden or build a bridge, to repairing their own weapon system, they can expect to have access to the needed information and expertise over the network, on demand. All Soldiers will know how to access information quickly. Easy to use "intelligent" search engines will lead Soldiers where they need to go. Key elements of a comprehensive knowledge management capability will be Soldiers' ability to "reachback" to training and information repositories to pull needed information as well as the ability of the TLE system to push needed information to Soldiers. Operational observations, insights, and lessons for units and individuals will be available on demand. Access to training repositories will reduce the turn around times for Soldiers to obtain doctrine, lessons learned, technical information, performance support, training support packages, and after AARs. This will greatly ease the training management burden for leaders and provide access to training that tailors to the Soldier or unit need. As good as the available information might be in the future there is no substitute for Soldiers learning and mastering basic information and acquiring sufficient experience to facilitate seeking more details electronically.

To reach the goal of on demand access to appropriate and relevant learning activities and information the Army must employ a lifecycle approach to information resources and invest in the associated people, processes, technology standards, and policy. To be truly accessible, learning content must be easily and quickly searchable, shareable, modular, and reusable for multiple purposes, and the content management and delivery system must be consistent and accessible to both learners and developers. Planned learning activities, such as online or resident courses or simulation exercises, will be enriched, and reinforced by on demand access to relevant information, such as pertinent articles, online discussions, or video vignettes from a related AAR. Machinima (a term borrowed from entertainment that refers to movies made of events in a 3D game, with inserted dialogue or commentary) will play a role in future AARs for simulation-based training. Units will have live access to one another and to information on their future AOs.

Units will be able to tap into other units' CTC AARs from distant locations, and domestic units will be able to link into daily update briefings done by any in-theater unit, but especially the unit they will replace in theater. Units will also have on demand access to information on important aspects of their future AOs, such as three-dimensional views of the terrain, and analyses of the local political, military, economic, societal information and infrastructure. Full realization of these types of critical capabilities for Soldier will likely require collaboration between the Army's chief information officer and TRADOC to overcome technical hurdles.

Finally, to ensure true accessibility and flexibility of training, Soldiers and commanders must have the capability to train in their units without significant external support. In the future, units will rapidly execute training with organic assets, saving time for leaders to focus on execution and retraining instead of extensive planning and coordinating unit training support, resources, and movement. In lieu of the subject matter and instructional expertise of trainers, artificially intelligent tutors, coaches, and mentors will monitor and track Soldier learning needs, assessing and diagnosing problems and providing other assistance, as appropriate. Embedded training and performance support systems will provide much of the needed deployable training capability. The live, virtual, and constructive training environment available through embedded training simulations will be virtually seamless. The lines between live, virtual, and constructive will be blurred and eventually disappear because most if not all training will be "blended" (for example, most events will integrate at least two of the environments). A commander and his staff will be unable to tell whether the communications from his unit are coming from a live communication system, a virtual trainer, or a constructive simulation that is driving realistic common operating pictures on the digital battle command systems. Information technologies will enable distributed cooperative training among supporting and supported units. Fires brigades will routinely train with infantry, aviation, the U.S. Air Force, and other units in a seamless constructive or virtual environment. Universal training support will provide training support products and services for exercises, battle drills, and mission rehearsal capabilities with worldwide, around-the-clock availability to Soldiers, leaders, and trainers.

Realistic Training

Future training must replicate, to the maximum extent possible, the salient aspects of the OE to insure that units train as they fight. Wass de Czege and Biever stress the significant message behind what has become an Army catch phrase "train as you fight [and] Armies achieve cohesion through tough realistic training, low personnel turbulence, and deep experience."[137] Training provides the internal mental models necessary to function under great stress and moderate levels of sleeplessness. Soldiers and units "fight as they train." When under great stress Soldiers can draw from behaviors ingrained in them through repetition. If the Army wants a Soldier or leader to demonstrate an increased repertoire of behaviors on the battlefield, the Army must train these behaviors. Ideally, the training and practice is tougher than the actual battle and effectively inculcates in the Soldier the ability to deal with the stress and fatigue of real operations.

Another important feature of realistic training is that it underlies the development of prudent risk takers. Leaders and Soldiers must be able to make quick, correct decisions when it comes to risk in the OE. Exposing Soldiers to risk in realistic simulation improves decisionmaking skills, provides an opportunity to correct errors without fear of injuring themselves or others, and

increases confidence and proficiency. Thus, realistic training is essential for the reduction of risk on the battlefield.

In the future, live training will remain a cornerstone of realistic training for individuals and units. While constrained resources and training environments will continue to place limitations on live training, the increasing availability of virtual and constructive simulations will both augment and enrich the live training experience. The purpose of the Army and joint future forces ranges concept is to enable the Army to "find new methods (increased range efficiencies, technology enhancements, and expansion of range/maneuver areas to accommodate new capabilities) to foster dynamic and realistic ground force training in a joint context.[138] A major objective is to increase accessibility, quality, deployability, and jointness of Army range and maneuver areas. The concept calls for the creation of networked and interoperable live, virtual, and constructive training environments that are robust, scaleable to the size of the training event, flexible and mobile. At the center of the plan is the selection of viable options for evolving range/maneuver areas into joint and Army future force ranges that link to the emerging joint national training capability. Other elements of the future plan include the development of home station joint training range complexes and the integration of virtual and constructive simulation and DL capabilities into live ranges. By enabling future leaders to incorporate virtual and constructive components into the live training environment, (such as unmanned aerial systems, joint effects, and other friendly units) the new ranges will enable leaders to train as they fight.

In the future, through advances in Army S&T and improvements in commercially available game technologies, virtual training will provide realistic training environments that closely approximate the OE and the necessary "suspension of disbelief" to optimize learning. Accessibility, re-configurability, and usability of virtual training will greatly increase, as will the applications of virtual simulation, from low overhead applications of gaming technology for learning of cognitive tasks, to higher end fully immersive simulations for learning of psychomotor and cognitive tasks. Virtual trainers will become more widely available, in part, because they are capable of providing an immersive environment for intensive experiential learning that may result in accelerated learning of complex cognitive tasks. In their discussion of the need to improve training productivity, Wass de Czega and Biever suggest that, "…increased investment may be necessary, particularly in simulations that allow individuals, teams and units to increase proficiency levels without asking for greater time sacrifices than the present."[139] As discussed a little later in this chapter, learning theorists have proposed that well-designed guided

experiential learning (GEL) is a means of packing more learning into less time. Virtual simulation is a primary means of providing GEL. Virtual simulation will enrich institutional and operational training and through wide availability via DL and other means, make a major contribution to the Army's life long learning capabilities.

Potential applications of virtual training to provide experiential learning are numerous. For example, Scales states:

> The military spends millions to create sites to train Soldiers how to kill an enemy in cities. But perhaps equally useful might be smaller home station sites optimized to teach small units how to cultivate trust and understanding among people inside cities. These more intimate and hands-on facilities would immerse individual Soldiers in a simulated environment, perhaps replicating a mosque or busy marketplace, where they would confront various crises precipitated by role players seeking to incite a local mob to violence.[140]

In the future, advances in S&T will enable realistic, interactive "virtual humans" to take the place of human role players, and artificially intelligent mentors, coaches, and tutors will guide Soldiers through the training event and provide feedback on performance. Advances in learning science, and application of principles of learning science to the design of virtual simulations, will also be essential to ensure the simulated environments are also learning environments. Integrating off-the-shelf game technologies into virtual simulations and authoring tools enable Soldiers to modify scenarios as needed. As technology advances there will be more widespread application of virtual simulation to areas such as language training, combat leader decisionmaking, and the augmentation of live training with virtual training. The future outlook includes a repository of small game-based trainers for Soldiers by demand, providing training for many individual and team level tasks.

Virtual training scenarios developed relatively quickly in response to needs from the field, and the fact that Soldiers and units are demanding these types of applications, will be factors shaping the availability of this type of training in the future. As stated earlier, the future Soldier and leader will be very much like today's digital natives only more so. Many future Soldiers will be familiar and comfortable with virtual simulation as both an entertainment and a learning platform. Soldiers and commanders will seek out virtual training for professional development, reset and pre-deployment training, and mission rehearsal—especially if the simulation scenario tailors to the specific Soldier or unit need. Current unit demands for virtual trainers are indicative of this growing trend.

Future CTCs will continue to employ constructive simulations for the realistic simulation of digital battle command systems, however they will expand training capabilities, and both the centers and the simulations will be increasingly easy to use. Centers will interconnect with one another to share simulations and, to approximate more fully an actual training event. Centers will interconnected to instrumentation systems in the field and to virtual training systems for mounted, aerial, and dismounted operations. Furthermore, the centers and the simulations they provide will be turnkey operations for commanders and their units. Commanders will simply

provide a general scenario they want to train, the training event will be set up for them, and their staff will fall in on real or emulated battle command equipment.

Finally, the successful execution of realistic training in the future will require development of the infrastructure needed to support a truly seamless, holistic synthetic training environment that closely approximates the OE. Such an infrastructure will enable an integrated training environment in which current and future Army modularized units can train and operate while employing networked battle command assets.[141] It will ensure that, ultimately, all simulation systems, instrumentation systems, C2 systems, and weapons systems operate and interoperate, using common databases that accurately represent individual and group behaviors, atmospheric and ground effects, and include virtual terrain that replicates the actual theater of operation. The synthetic training environment created will be able to accommodate the full spectrum of operations within the JIM environment, from special operations to logistics to combat, and be sufficiently interactive to allow combined and distributed training of the different elements. In short, the infrastructure will be essential for the provision of realistic and responsive training and mission rehearsal capabilities supporting Soldier, leader and unit training regardless of where and when the Soldier, leader, and units need them.

Responsive Training Development and Delivery

The future training and leader development system will have the capability to support shorter cycle times by rapidly capturing and integrating collected operational insights and changes, leading to timely and effective individual and collective training products. It will provide training, education, and mission rehearsal tailored to the specific skills and knowledge level of the individual Soldier or unit and their defined needs. In a learner-centric system of education, the system uses individual knowledge, skills, and other developmental needs to tailor timing, delivery, and duration. "The new learning environment should center on the student, not the institution, with every learning opportunity crafted to ensure that the right methods, both pedagogical and methodological, are used to give the military learner just what is needed when it is needed…."[142]

Dropping the linear model of training development and delivery in favor of a model that allows for more spontaneity and responsiveness to immediate needs, makes sense given the unpredictability of combat conditions, and the rapid adaptability of threats. TRADOC, as a key element of the "generating force," seamlessly links to the operating force to enable lessons learned and other feedback to improve training and doctrine rapidly within and between the two force components. TRADOC will proactively serve the needs of the operational Army through a web of interrelated and interdependent initiatives including unit tailored MTTs, DL, making training products available on demand, the provision of web-based doctrinal TTP that can be updated rapidly, and the development of collaborative knowledge sites, to mention but a few.

Years of learning science research and practice have identified key attributes of effective and efficient training and education, and research continues. TRADOC will apply the best principles of learning science to meet the challenges of increased training demands. The application of learning science goals include accelerating learning while maintaining effectiveness, choosing and leveraging learning technologies and methods based on learning effectiveness, enabling rapid

insertion of lessons learned into training and leader development, and minimizing resource requirements (cost, people) by streamlining time in institutional training and education settings.[143] Following the recommendations of learning science, future training will be more: experiential, authentic, current, relevant, guided, motivational, engaging, tailored to the learner, and collaborative (as needed). For example, GEL is one instructional design approach for cognitive tasks that is grounded in learning science principles and will be widely applied to both classroom and DL instruction. When integrated into training and education across the system, GEL will be applicable to many different tasks and settings, even as the Army anticipates there will be less time to learn. The use of simulations to provide Soldiers multiple, varied realistic experiences over a shorter period than possible with live training (or through real world experience) is another approach to compression of learning. Today this approach is recognized as a means of providing the multiple repetitions of varied decisionmaking scenarios necessary to teach Soldiers how to think not what to think, but no doubt will be more widely applied to accelerate learning in the future.

Responsiveness must characterize future training development, as well as training execution. Future training must be sufficiently responsive and robust to ensure that units accommodate rapid changes in doctrine, leader development, organization, and equipment, while maintaining readiness and meeting current operational requirements. This will necessitate links between units, schools, and training centers to enable collaborative training development, delivery, testing, and evaluation in a distributed mode, as well as rapid feedback on training requirements. In addition to the links required to support collaboration, all Army trainers, regardless of component or location, will have at least a limited local capability (such as, easy to use authoring tools) to prepare, produce, and rapidly reconfigure individual Soldier and unit performance-oriented, standards-based, and realistic multi-echelon training. Nearly all operations encounter unexpected and unanticipated challenges. One way to prepare for these challenges is to ensure that capabilities for preparing or editing DL, simulation, and or simulation scenarios are available to local commanders whenever and wherever needed in a format that does not require substantial computer skills. The Army requires a search of methods that assist commanders in developing training that meets appropriate accuracy and quality standards. Rapid and easy to use development tools will be equally useful for institutional training developers. Skill decay models and decision tools must enable trainers to determine when, where, and how to deliver training and performance support most effectively and efficiently. Training developers provide the tools and decision support systems they need to analyze, design, develop, and execute training more efficiently and effectively.

Finally, to be truly responsive to the needs of the operational Army the future TLE system will need to develop a comprehensive, outcome oriented approach to evaluation of its effectiveness along key dimensions. The future evaluation approach must provide systematic and frequent feedback on outcomes through a monitoring approach that is comprehensive yet efficient, generates both quantitative and qualitative feedback, minimizes interference with training and operations, but is a clear command priority. For example, the evaluation system must monitor learning effectiveness as a contributor to individual and unit readiness. It must assess the relevance of training and education based on timeliness and accuracy of information; and on how well it meets Soldier, leader, or unit needs. Evaluation must include accessibility of knowledge, training and educational courses, and materials; including ease of access and use, and

the ability to tailor the material quickly to individual or unit needs. The identification of outcome measures and processes that can provide this type of feedback must be a priority for future training, and leadership education research and studies.

Training for Joint, Interagency, and Multinational (JIM) Operations

Army operations will continue to rely on joint interdependence and the future OE will contain significant JIM elements. The Joint Force Training Center proposes a process and environment necessary to build the required joint culture and revolutionize joint training. Two central ideas form the basis for this joint concept. The first, the transformation of joint training processes, focuses on non-materiel changes that will transform joint training and provide required skills to individuals, units, and staffs at the right time. The second emphasizes the need to strengthen the Joint training global environment.

Future Army JIM doctrine and training programs must be capable of rapidly producing training support products designed for use in a JIM environment and/or for training within a JIM context. Observations, insights, and lessons from JIM operations must be as accessible as those from the Center for Army Lessons Learned. Within the TLE programs, there will be an increased emphasis on incorporating scenarios, case studies and other instructional approaches with JIM operations as the context, and more training time given to training of skills needed for collaborative planning and decisionmaking in a JIM context. Professional military education curricula must prepare Army leaders to be joint commanders and staff officers in Army forces commands, joint force land component commands, and joint TF headquarters.

In addition, Soldiers need training to understand and appreciate the cultures of other nations, other services, and other governmental agencies and nongovernmental organizations as early as possible in their careers. Scales has proposed that the Army take advantage of web-based capabilities to establish collaborative learning opportunities among officers from the different services—something worth considering for multinational partners as well as the joint community:

> Immediately after commissioning, an officer would become part of a joint seminar of a dozen or so peers from across the services who share a common specialty.… Senior educators from middle and higher-level service schools would moderate these seminars. Students' unit commanders would actively serve as their mentors, responsible for counseling and evaluating their progress…. The program would be history based and thoroughly joint.[144]

The future TLE system must also support the second central idea stressed in the Joint Force Training Center—the need to strengthen the joint training global environment. This idea "focuses on materiel changes to create a truly global training domain that combines actual forces and equipment (live), simulated weapons systems (virtual), and mass force modeling (constructive)."[145] Army plans call for providing commanders the capability to conduct training or mission rehearsals simultaneously, at widespread geographic locations, using different simulation systems, in a mix of live, virtual, and constructive environments, on an interactive basis, in preparation for JIM operations. In the future, a greater reliance on constructive and virtual training environments will facilitate increased participation of other organizations in

training. Training simulations and capabilities that link to other services, agencies, and nations for geographically dispersed training will be essential to develop and sustain combined joint task force (CJTF) headquarters training readiness as well as CJTF augmentation elements. In addition, future leaders must have training aids and other technologies necessary to facilitate the integration and training of dissimilar forces, particularly with respect to different levels of C2 systems capabilities that complicate information interoperability with coalition forces. Units must have the capability to integrate augmentees and make them part of the team as rapidly as possible. CTCs will train Army units in a JIM environment so that leaders are trained in the complexities of future battlefields; however, units must have training enablers and training support available to them at home station so that the first time they train in a JIM environment is not at the CTCs.

Managing Unit Performance

Tomorrow, as today, unit commanders, through subordinate leaders, will continue to build on the learning foundation provided in Army schools by creating and nurturing an organizational climate that encourages continuous learning and improvement. Units, as learning organizations, will continue to enable Soldiers to develop their skills, knowledge, and abilities to support successful execution of the unit's core and direct mission essential task list. In the future, however, unit commanders will have a greatly improved ability to tailor individual and collective training to the specific needs of their Soldiers because they will have on demand access to relevant performance information on Soldiers in their unit, and the tools needed to plan the necessary training and performance support.

In a full spectrum capable Army, the most valuable intangible commodity in future units will be time. Unit training management tools will conserve time by making training more efficient and effective. Future unit training management capabilities will build on the Digital Training Management System and the Army's "Career Tracker" program (which provides a single access portal for information on a Soldier's training, education, and experience) by providing the commander a team/unit level roll-up of Soldier performance information that pinpoints individual and collective skill deficiencies. Tools available to commanders will directly support collective performance assessment and or translate the performance of individuals into a measure of collective performance. This capability will enable commanders to select Soldiers for units, TFs, special team assignments, and duty assignments based on skills and proficiency on mission-relevant tasks. Commanders will also be able to preview skill levels of inbound Soldiers, anticipate individual and unit training requirements and plan accordingly during short reset, retrain windows. Access to diagnostic testing of individual and collective skills will enable commanders to hone in on skill deficiencies and fine tune individual and collective training to maximize training efficiency. Ultimately, the future unit training management capability will contribute to a commander's assessment of unit readiness for current or predicted mission contingencies.

Future commanders will be able to tailor, and then provide at the right time, the training and performance support needed by their Soldiers to reach the required level of readiness. After identifying performance deficiencies, unit training management tools similar to digital training management system will assist commanders by prescribing effective practice and feedback events for individual Soldiers and units. Developing these tools requires an understanding drawn

from learning science; of the specific learning activities that support stages of skill acquisition and that support specific transfer and retention goals based on the unit mission. Soldiers and commanders will access the prescribed training through reachback, or will use tools available to them to tailor DL, or simulations to their needs. Automated tools will also support rapid teambuilding, mission planning, and rehearsal to insure that mission-tailored units achieve the level of readiness needed for rapid deployment. Unit training will facilitate collaborative training of those JIM forces, active component and Army Reserve Soldiers considered most likely to deploy together, based on contingency planning. Like today's unit training management strategies, future strategies will attempt to optimize the time war fighters spend participating in training, vice preparing for training or conducting administrative duties. Current and future systems will harvest, analyze, document, and report individual and collective training status and requirements, providing feedback on training needs and assisting trainers, Soldiers, and leaders in identifying training events and resources required to carry out training plans. Technological improvements to unit training management systems over time will make them almost turnkey operations. Additionally, improvements in the automation of AARs will greatly reduce the burden of assessment in training events.

Application of Human Performance improvement (HPI) Techniques

The future training and leader development system will also apply approaches that work synergistically with TLE to optimize Soldier performance. As the needs and expectations for Soldier and leader performance increase in breadth, complexity, and difficulty, the time and resources needed for training and education will increase. Ultimately, the TLE burden may become untenable, for both the Soldier and the TLE system, unless other effective and efficient means of supporting Soldier performance supplements or reduces the need for training and education. To address this issue, the Army will follow the lead of industrial and military human resource experts who recommend a focus on human performance and selection from a menu of options for improving human performance, rather than sole reliance on training and education.[146] Other approaches to improving human performance include but are not limited to recruiting or selecting personnel with the required attributes and skills, and improving the human-machine interface design (such as, user friendliness of the equipment). These approaches, along with training and education, integrate within the overall HPI framework under consideration by TRADOC. The HPI process distinguishes itself by its emphasis on a front-end performance analysis to identify the gap between desired and actual performance, and a thorough analysis of the cause(s) of the performance problem. Application of HPI analytic techniques will lead to determination of the most effective solution or set of solutions to a problem. Training and/or education will often be part of a blended solution set but seldom the total remedy.

Planning for future systems has employed the HPI approach. In addition to embedded training on the equipment platform, future systems will also enhance Soldier performance by providing automated diagnostics, electronic performance support systems (job performance aids), and reachback to subject matter expertise through the same system that will be used for operational planning and mission rehearsal. Making these types of performance support available reduces the amount of time Soldiers must spend in memorization and practice of certain kinds of tasks, thereby increasing the efficiency of training. In the future, HPI approaches may also help reduce the length of time required for Soldiers to achieve mastery of complex sets of cognitive

skills. HPI techniques analyze expert performance in order to model the strategies that experts use. The expert's approach becomes the basis for training and education, or for the development of expert systems (electronic performance support systems that draw upon the knowledge and approaches taken by experts). Thus, through the application of expert modeling techniques non-experts may approximate the performance of true experts in less time.

Based on Navy and Coast Guard experience, adoption of the HPI approach should enable the Army to realize significant return on its investment in HPI techniques.[147] These services (who refer to their HPI approach as human performance technology are using human performance technology in the design of new ships and other equipment but also for the resolution of current performance problems. Industry benchmarks indicate that using human performance technology analysis techniques to understand and resolve performance problems can result in an 8:1 return on investment and a 10-20 percent improvement in performance beyond that which would result from training and education alone.

5-5. Conclusion

The Army's challenge is to think beyond traditional business practices to identify and adopt the methods and technological advances needed to provide the right knowledge, training and education to Soldiers and their leaders when and where needed in order to make a qualitative change in their performance. The vision presented here provides a framework for considering the nature of the future Army TLE system and defines the context for the TLE S&T research, experimentation, and studies investments required to realize the vision. Although this has been the direction of the Army's thinking for some time, rounding the corner on precision training and education will require a new mindset, new insights about knowledge and learning, and new tools and technologies.

> The question is no longer how to use technology to do the same thing better. Now the question is how to use technology to change practice to reach new goals—as a catalyst for change and as a tool in creating, implementing, managing, and communicating a new conception of teaching and learning and a system that supports it.[148]

There can be no doubt that realizing the vision for future TLE will require a deep and continuing investment in TLE S&T research, experimentation, and studies. Although policies, structural, process, and doctrine changes will be necessary parts of the evolution toward a precision training and education system, these changes alone will not be sufficient. These changes alone cannot revolutionize Army TLE. Specific new tools and information will be essential to extending reach far enough to realize the vision (for example, an infusion of new knowledge about emerging Soldier and leader skill requirements, effective learning methods, a variety of specific technological advancements, and information about the effectiveness and efficiency of alternative training and education technologies and approaches). Today, the lack of these tools and information is a roadblock to progress. Tomorrow, the right S&T research, experimentation, and studies will provide the discoveries needed to enable progress.

Although there is some overlap between the three areas of investigation (S&T research, experimentation, and studies), they each play a unique role in helping to achieve the goals embodied in this concept. For example, S&T research will provide innovative new learning principles, methods, models, and metrics to make TLE Soldier-centered and precise. S&T research will also produce the technological advances required to improve realism and access to training, education, and knowledge by Soldiers, leaders, and units. As the types of research problems that need addressing are not bounded by a single traditional discipline, future TLE S&T research will primarily be multidisciplinary and integrative in nature. Experimentation will provide the venues needed to try out new learning methods and technologies to refine the understanding of the TLE concept and capabilities. Studies will pull together existing information to support decisionmaking and, when applied to new or pilot TLE programs, tell us which approaches are most cost effective and learning effective.

Grasping the complexity of the future OE and mastering the knowledge and skills needed to conduct successfully full spectrum operations in that environment is a significant challenge for the Soldier and his leadership. The challenge dramatically increases when called upon to exercise those skills in conflict. Striving to defeat an adversary, while adhering to your own and the Army's moral and ethical standards, taxes the Soldier morally, physically, and cognitively. The challenges inevitably produce stress in the Soldier. Emerging understanding of the physical and mental reactions of the human to stress suggests that—while stress is a natural and inevitable reaction to the environment—it need not be debilitating to the individual or the unit. The following chapter discusses the causes of stress, factors that mitigate its impact, and potential means of predicting, detecting, and treating stress before, during, and after its occurrence.

Vignette

Fort Carson, Colorado, March 2020

Sergeant Lance Topping and his men have been training together for two years. He understands the importance of constantly improving combat skills and keeping up on the latest TTPs. After uploading the current TTPs, Sergeant Topping accesses the unit training management tool taking a quick look at his squad's readiness. He knows that it has been some time since his squad used the intelligence gathering skills so critical to a reconnaissance surveillance, and target acquisition unit. Reconnaissance, surveillance, and target acquisition (RSTA) is all about intelligence. He scans the list of training available from the Army institutional knowledge center through DL and selects a training program, uploading the information onto the hand held computers of the two FSV-R teams in his squad.

They are at the training center on post, set up in a field environment. Each squad member sees his tablet computer screen flash the message that Topping has sent them a program. They verify that the download for their translator system is up to date. This particular program is set for the Indonesian scenario they will be using at the National Training Center. Sergeant Topping has his Soldiers zero their rifles and go through possible scenarios in the mobile virtual shooting

environment. Both teams then complete the intelligence program that runs them through a virtual environment presenting various visual and electronic clues that they must process and report both individually and as teams. Topping's assistant squad leader and the vehicle commander of his second FSV-R, is really quick in getting his crew through the routine. Unfortunately, he skips some clues and reads some others wrong which results in an unsatisfactory. After two more runs through the intelligence gathering routine, both teams in Topping's squad have passed. Topping is frustrated that it took three iterations, but thankful at the same time that it was virtual and not in the valley at Irwin.

Topping checks his Soldiers' medical monitors to ensure that they are healthy, hydrated, and ready for the next day before allowing them to turn in for the night.

The next morning, Topping sets the squad on the east tank trail to head out to the live, virtual, and constructive training site. As the FSV-Rs roll, Topping signs in to the instrumented range and sends the confirmation data that activates their systems and loads the current common operational picture. They are set up for the RSTA Challenge One program. It is pretty close to the training routine they'd completed the day before, except this was on the live range and a great deal more dicey.

Topping thinks back over his most recent training and all the times they drilled the idea of acting independently into their heads. In situation after situation they were forced to make a rapid assessment, decide on a course of action, and then take that action. It was tough enough just doing the assessment and making a choice. Getting one's contemporaries to follow your instructions really challenged the students. During the training he had practiced adaptive-problem solving skills in numerous realistic scenarios and had received excellent feedback on his decisionmaking from his peers and instructors, as well as the automated coaches embedded in the scenarios. Today's drill was a relevant situational training exercise designed to prepare teams, squads, and platoons for either actual operations or a rotation at one of the CTCs. Topping's two-vehicle squad was the live part of the exercise. The platoon, company, and other units were virtual; meaning he could see their icons and observe their actions, actually interact with them digitally, and maneuver as part of the larger formation, but without any of them being there.

"Okay guys," Topping says on the voice-activated intercom. "Let's see what we have here."

It's a battalion insertion by C-17 transports and Condor joint heavy lift aircraft, he sees. One of the major operations they practiced often. His team is XY'd to the point of entry to the AO.[149] *The maps adjust instantly, displaying new graphics and friendly and enemy arrays. Once again Topping's squad is a point element charged with scouting the routes for the rest of the incoming combat forces, but, more importantly, deploying unmanned aerial systems and filling in the gaps in the automated common operational picture. How well he did alongside the virtual RSTA squads would determine how well the line companies saw the situation when they exited their aircraft. "Well." Topping thought, "they actually see the situation while still in the air, but," he reminded himself, "it's our job to populate a large part of that picture."*

Sergeant Topping switches to what the unmanned aerial systems supporting his operation were seeing. Four suspicious looking military-age males milled about at a roadside stand. They didn't seem to be armed. He would approach cautiously and then make the call on whether or not to stop and interrogate the men. He had recently reviewed tactical questioning techniques. He'd be looking for weapons residue on their persons with his remote sniffer while running digital images through the system to check identification. After assessing the risk was low, he could simulate getting out of the FSV-R to talk to them using a hand-held translator. Besides, the suspicious men were just video images. He'd have to list the questions he wanted to ask and run them through the system to see if they would produce any useful information.

All came up negative, but the digital response indicated that the men would have told them they had seen the enemy moving to the road but the sounds of the aerial drone had scared them off. The enemy has been harassing the locals for days and finding shelter with local supporters. Topping taps in a verbal thanks and keys the biometric device to determine veracity. In reality, he would have to be on the ground to talk to the men, but on this range, just indicating you were using the device produced a result.

"They're telling the truth, Sergeant Topping," his sensor specialist reported. "Looks like we're being asked to do something about the potable water availability. Want me to report that?"

"Tell me what it means and I'll answer your question."

"Well, Sergeant, if the bad guys, the Anderians, I mean, had cut off the water supply, that would be valid intelligence, right?"

"Right you are Specialist. And, Mike," he asked the gunner, "what do we do with this little tidbit of information?"

"Digital spot report, you know, Sergeant Topping. How many times have you drilled that into us?"

Topping played this little question and answer game with his squad to keep them on their toes. It was all well and good to have all the computer generated course, tests, and virtual verification that you'd made the right decision and taken the right action, but it was plain old leadership that makes you check and recheck your Soldiers just to be sure any one of them could take over your duties or anyone else in the crew should it be necessary.

They finished the run on the range with close to 95 percent accuracy on their reports. "Not bad for a squad that had to do three iterations statically," Topping thought. It had been a good week. After they got back to the motor pool he'd give them some time to unload and service the vehicles and then cut them loose.

Topping accessed his education portal on his hand held computer selecting the automated Army Career Tracker to see if the system had updated his educational transcript. He jumped to his career map. He was gunning for staff sergeant and wanted to verify the prerequisite classes

he still needed. He queued up a video teleconference class given back at Ft. Benning that he'll attend later that day. He thinks about joining a multiplayer on-line game to practice and discuss tactics, but enough's enough. One could do nothing else but play these games and take those courses.

"Nope," he says to himself. "Not tonight, and not tomorrow either. Tonight I take the kids to the park. No more digits. Just some swings and running around and a little Frisbee. Man, I love this Army!

Computers and audiovisual tools have enhanced training for many years. Modeling and simulation grows more and more realistic at an unbelievable rate. Popular war games and official digital live, virtual, and constructive training are here today. They will only get better in the future, and all Soldiers will increasingly depend on DL as it replaces some—but not all—live classroom and field training. This ability to economize on actual exercises will save resources and enable cooperative and collaborative training for individuals, teams, squads, and larger units. This vignette is set in a stateside environment, but could just as easily fit a deployed unit on operations. Training is a human activity. Learning is a human activity. Over reliance on technology at the expense of nurturing leadership is dangerous. Balance is the answer.

Required Capabilities

- An expanded lifelong leadership education process that fully leverages all effective tools and opportunities to accelerate, sustain and improve leaders' skill development throughout their careers.
- A responsive TLE system that ensures Soldiers have access to relevant training and education, and information through reachback, when and where needed.
- A realistic simulated environment, and realistic simulation programs, that replicate the salient aspects of the OE to ensure Soldiers train as they fight.
- A dynamic training system that adapts as needed to the characteristics of future learners, as well as to unique Soldier skill and competency requirements stemming from a changing OE.
- A Soldier-centered training development and delivery system that rapidly produces timely, operationally relevant training products, and uses individual Soldier knowledge, skills, and development needs to tailor training content, timing, and delivery.
- A multifaceted training capability that prepares Soldiers to operate effectively in the JIM culture or OE.
- A unit training management system that enables commanders to tailor training to their Soldiers' proficiency levels and operational requirements, and reduces the need for unit training management resources.
- A training approach that applies HPI techniques to prescribe a best solution or solution set to resolve a performance deficiency.
- A doctrine development process that provides real time updates to TTP.

- A training capability that allows units to train themselves without significant external support.

Questions for Further Exploration

All of the TLE issues that must be addressed by S&T research, experimentation, and studies are far too numerous to list here, and all cannot be foreseen. However, what are clear are the types of issues that must be priorities. These include finding answers to the following questions.

- How can innovative learning models, strategies, and tools enable the training system to improve efficiency and effectiveness of individual, collective, and self-development training for future Modular Force Soldiers?
- How can emerging technologies enable the training system to provide more realistic, relevant, and responsive training on demand?
- How can emerging knowledge from learning science, and new training technologies improve the responsiveness of training development and delivery (both rapid access and availability)?
- What, if any, changes in training and education (such as, IMT, OES, NCOES) might be needed to prepare millennial Soldiers in the most efficient and effective manner? For example, because of their immersion in a digital world, do millennials have a different definition of "knowledge" and "learning" and if so, what are the implications for Army training and education?
- What are the limits on Soldier and leader learning and performance? (For example, limits on the extent to which to accelerate learning; limits on range and/or depth of multifaceted or multi-skilled performance.)
- What are the implications for individual and collective training and education in the future?
- How should training be arranged to provide opportunities for units to practice learning?
- How can the Army recognize when units and leaders are learning effectively and deliberately?
- How can schools teach organizational learning?
- How do larger units and senior leaders contribute to learning during operations?
- How should the Army address the unique TLE needs of the Army Reserve Soldier—as a “part-time” warrior-citizen?
- Do millennials have the potential to be the first true generation of life long learners?
- Do millennials prefer independent learning and does that translate into a natural affinity and the skills for self-development?
- Does familiarity with technology and exposure to rapidly changing realities via the Internet give today’s generation an intuitive understanding of the need to continuously learn and adapt their thinking within a dynamic environment?

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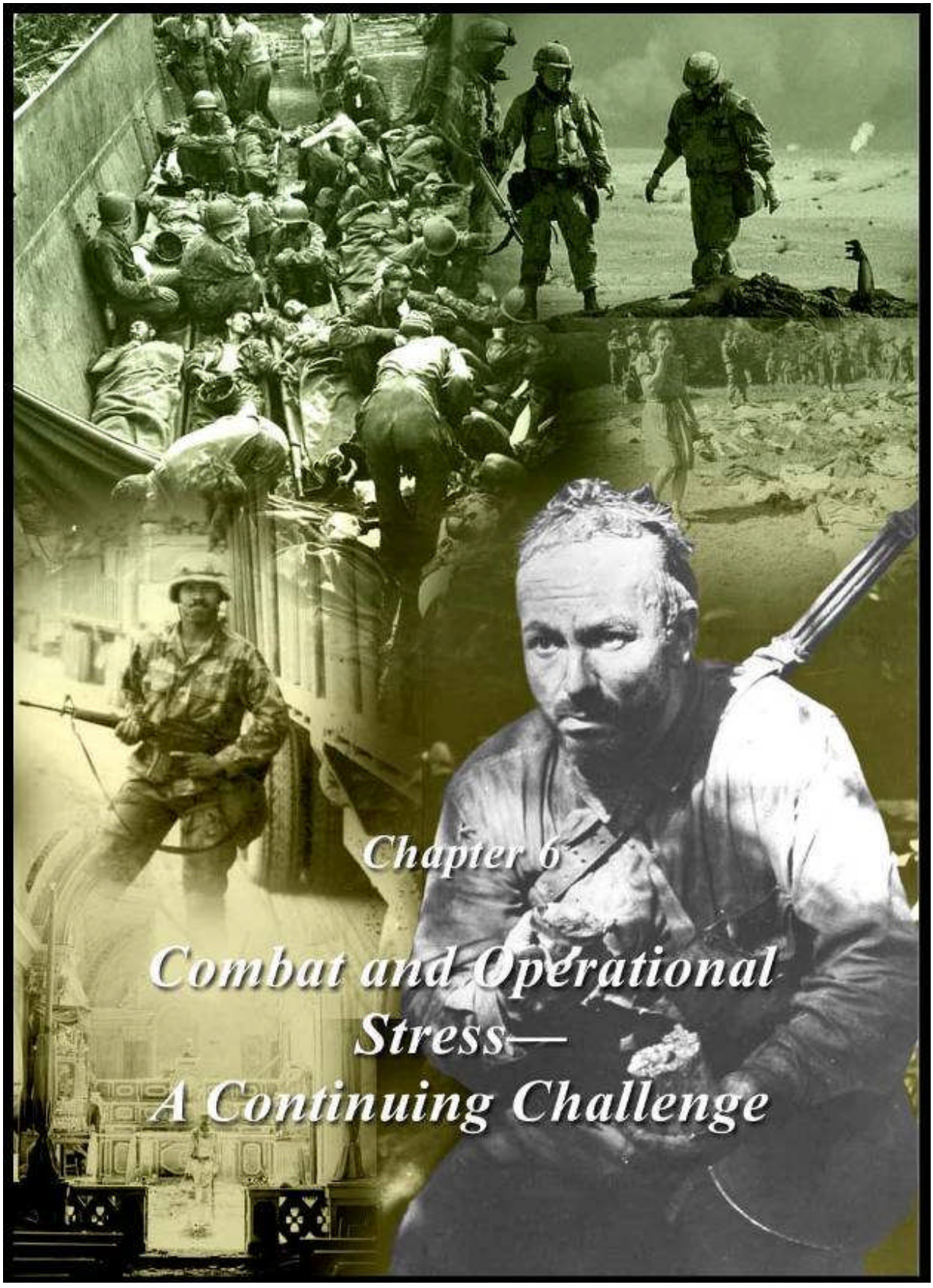

Chapter 6

Combat and Operational Stress— A Continuing Challenge

One-and-a-half million Americans have served in Iraq and Afghanistan. Not one of them came home unchanged. No one comes back unchanged.

COL (Dr.) Tom Burke
DOD Director of Mental Health Policy

Chapter 6
Combat and Operational Stress—A Continuing Challenge

6-1. Introduction and Historical Background

No matter how well the Army develops men and women of stellar character, superb physical conditioning, armed with the knowledge and intellect essential to the profession, prolonged exposure to stress, particularly that of the trauma associated with combat, can wear Soldiers down, and reduce the effectiveness of their units. Stress, of course, exists all of the time. It is not limited to combat nor is its effects limited to Soldiers. Families experience stress because of prolonged and repeated deployments, and the strain on the family in turn produces another stressor taxing the Soldier. Combat stress represents one of the more extreme conditions Soldiers experience in war. Some, perhaps most, Soldiers learn to cope with the effects of combat stress, but it is increasingly evident that the effects of stress, whatever the source, can be cumulative, and remain hidden for a long time. Stress occurs and has effects in the moral, physical, and mental components of the human dimension. This chapter addresses the sources of combat and operational stress, their effects on Soldiers, Army civilians, and contractors, and the implications they have on the human dimension.

The development of the railroad, breechloaders, barbed wire, the machinegun, indirect artillery fire, the airplane, tank, and wireless radio, changed tactics and introduced the concept of operational art. These technological innovations contributed to a Revolution in Military Affairs that continues to have important implications for the human dimension. The battlefield impact of more lethal direct and indirect fire systems forced greater dispersion among Soldiers and units that led to increased C2 difficulties for leaders at all levels as Soldiers advanced in individual rushes to successive covered positions. Voice command, visual signals, or even messengers could no longer control the increased decentralization of units effectively. Future concepts call for a continued increase in the dispersion of individuals and units and for ever-increasing autonomy. This trend presents a significant challenge to the Army.

Leadership pressure emphasizing duty and offensive action in the face of battlefield lethality and strong defenses were among the many factors that contributed to the massive losses of World War I and the emergence of significant numbers of psychological casualties referred to then as shell shock. The occurrence of such large numbers of psychological casualties, and incidents of unit-wide indiscipline, spawned a surge of interest within the medical profession and popular culture in the factors affecting the Soldiers will to fight.[150] For the most part, efforts to determine the causes succeeded only in differentiating between cowards and heroes. Better training, rest, and treatment among the Soldier's comrades, relying on group cohesion as therapy to provide the motivation to recover, treated perceived cowardice and malingering successfully.

Well into World War II, many military leaders continued to regard a Soldier's breakdown due to combat fatigue as evidence of weak character as the infamous Patton slapping incidents illustrate. As the American Army continued to experience large numbers of combat stress casualties, evidence emerged linking both the prevention of stress casualties and combat motivation to Soldier morale and unit cohesion. Psychiatrists, behavioral scientists, and military theorists reached similar conclusions as to why "a tired cold, muddy rifleman goes forward with

the bitter dryness of fear in his mouth into mortar bursts and machine-gun fire of a determined enemy."[151] Samuel Stouffer and his associates Edward Shils and Morris Janowitz in *The American Soldier: Combat and its Aftermath*, and in their article, "Cohesion and Disintegration in the Wehrmacht in World War II," concluded that unit cohesion is built on the strength of the bonds Soldiers develop with each other and their leaders.[152] These small group ties combined with competent caring leadership, concern for their individual reputation with fellow Soldiers, and reputation as a contributing member of the unit are principle ingredients of effective units. These factors also contributed to lower psychiatric or battle stress casualties.

Nowhere in civilian life is the importance of group identification and mutual support more important than it is for Soldiers in combat.[153] A half century of research continues to indicate a strong relationship between among morale, cohesion, esprit de corps, combat motivation, and combat stress casualties. Collectively, the importance of morale, cohesion, and *esprit de corps* lies primarily in their contribution to motivating Soldiers and sustaining their fighting spirit but they also act as buffers against psychological breakdown.

Similarly, nowhere in civilian life is the role of the family more important to improving and sustaining the workforce. Strong family support groups for deployed units serve now and will continue to serve as bastions against the negative effects of stress. Future efforts to keep the deployed Soldier in contact with their families will continue to work both ways by shoring up the morale of the Soldier while reassuring those left behind of their continued support.

6-2. Combat and Operational Stress

> One of our cultural myths has been that only weaklings break down psychologically [and that] strong men with the will to do so can keep going indefinitely.[1]
>
> G.W. Beebe and J.W. Appel
> *Variation in Psychological Tolerance to Ground Combat in World War II, Final Report*, 1951

Traditionally, the loss of life, the number of seriously wounded, and property destruction measure the costs of war. Yet, within the last century, the realization emerged that the physical costs of war are not the only ones. Continuous, protracted combat is largely a twentieth century phenomenon. Prior to World War I, battles typically lasted only a matter of days before participants disengaged to recover and reset. World War I that introduced twenty-four hour combat lasting months and years, and it was in this conflict that armies first suffered large numbers of psychological casualties.

Soldiers engaged in combat and other military operations often witness horrific events. They kill others, risk death and wounds, and experience the loss of close friends. Modern military operations expose Soldiers to many sources of stress. Casualties caused from COSR can be from a single traumatic event or prolonged exposure to combat, and the numbers of psychological casualties can be as high or higher than the number of wounded or killed in action. For combatants in modern war, there is greater likelihood of becoming a psychological casualty than a casualty of enemy fire. There is also the danger of long-term stress or "post combat stress" reactions. Together these effects often extend beyond the lives of those who were there and shape the lives of family, friends, and communities for years afterwards.

Reinforced by many years of study and experience, what is known today about the causes, symptoms, resulting behaviors, prevention and treatment of combat and operational stress remains remarkably similar to the body of knowledge developed in earlier conflicts dating back two centuries or more. What has changed is classification and understanding. AR 40-216 and FM 4-02.51 contain current Army policy and doctrine on the cause, prevention, and treatment of combat and operational stress casualties. It defines combat stress as "all the physiological and emotional stresses encountered as a direct result of the dangers and mission demands of combat." Combat and operational stress control consists of programs developed and actions taken by Army leaders to prevent, identify, and manage adverse COSR in units. The purpose of stress control is to promote Soldier and unit readiness by developing adaptive stress reactions; preventing maladaptive stress reactions; assisting Soldiers with controlling COSR; and, assisting Soldiers with behavioral disorders.

The future OE operates with no front lines, no sanctuary, and 360-degree AOs. In this environment, all Soldiers are at risk albeit at different levels. The frequency and intensity of conflict will also differ among and even within units. As many behavior specialists and mental healthcare providers argue, this environment may produce a greater likelihood of psychological casualties due to stress because of the random nature of combat, the restrictive nature of the rules of engagement, and the ambiguity associated with their combat role within the OE.[154] The types of missions in these environments also require knowledge and skills that differ from traditional warfighting skills including cultural understanding and historical context, negotiation and mediation skills, the ability to diffuse potential incidents of violence and toleration for frustration, local hostility, and provocation. Such missions require a degree of restraint that can be in conflict with the aggressive spirit deliberately cultivated in Soldiers beginning in IET, the instinct for self-preservation and the traditional warrior role resulting in rising anger among Soldiers and the temptation to retaliate.[155] Illustrative of this complex and unorthodox environment is the concept of the three-block war that spans the spectrum of military operations where Soldiers could conceivably engage in peacekeeping, combat, and humanitarian operations simultaneously within a three block urban environment.[156]

Operating in this environment becomes especially frustrating against adversaries difficult to distinguish from the populace. An adversary that causes widespread suffering and commits brutal atrocities, including killing innocents in violation of the laws of armed conflict, only increases Soldier anxiety. Other noncombat related stressors, such as uncertainty of redeployment and duration of deployment, lack of privacy and personal space, and family separation accompanied by domestic problems, adds to this environment. Soldiers also endure

stresses from environmental extremes, nutritional irregularity, sleep deprivation, primitive living conditions, and dehydration. Even when the threat of violence is low, boredom, repetitive and unchallenging tasks, and ill-defined purpose provide their own share of operational stress. As figure 6-1 reflects, the psychological effects of combat and other operations are complex and varied, not the result of a single type of stressor and affecting every individual differently. This chart also reinforces the fact that stress effects can be cumulative rather than simply the result of single traumatic events. Any combination of physical and mental stressors can contribute to stress casualties.

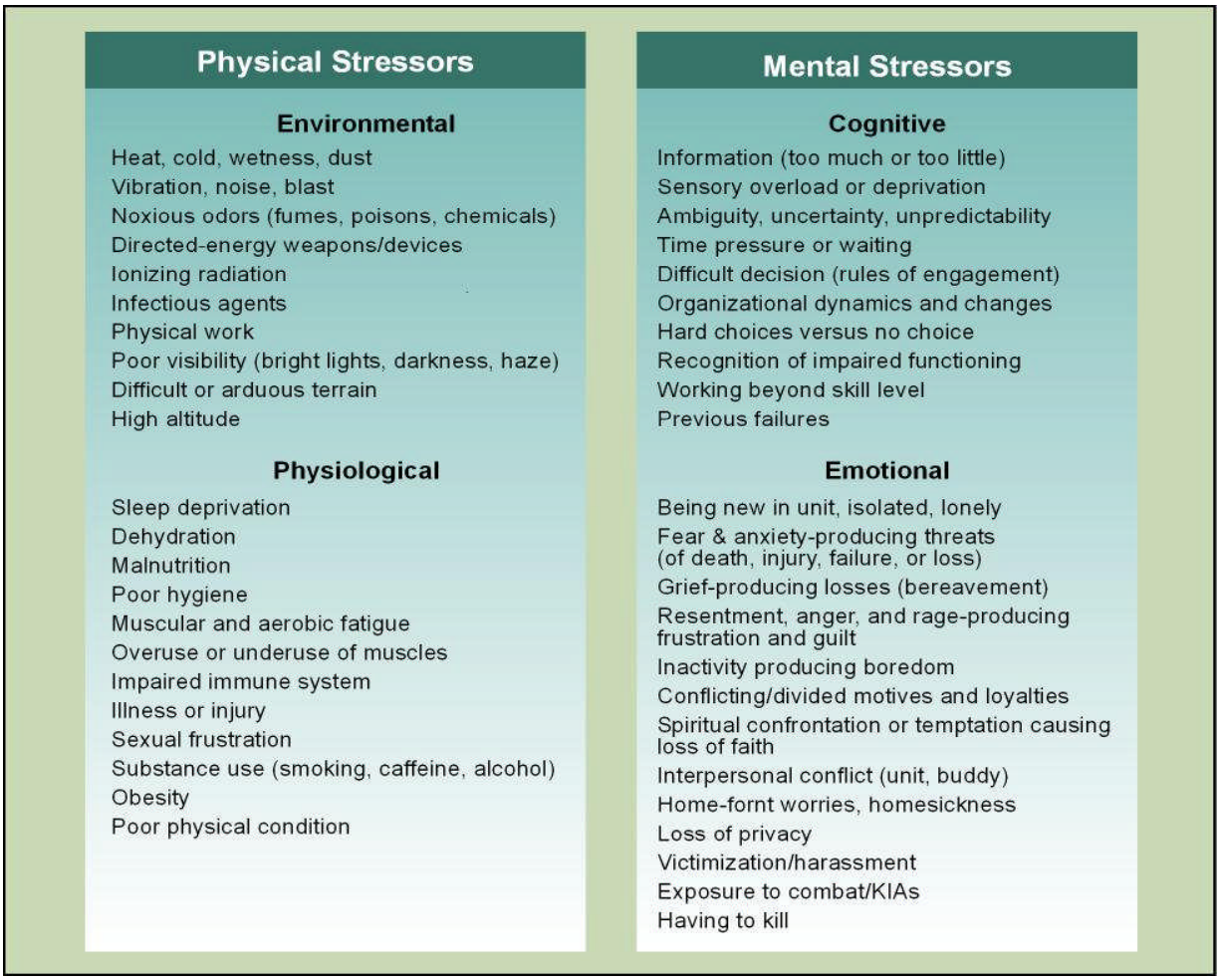

Figure 6-1. Combat and Operational Stressors

In spite of the range of differences associated with the spectrum of future military operation, all Soldiers require emotional, cognitive, and behavioral control over common symptoms of stress. It is common for Soldiers to experience the emotions of fear and hopelessness, mood swings, and anger. Soldiers may experience difficulties that are cognitive in nature, such as difficulties concentrating, short-term memory loss, nightmares, and flashbacks. Soldiers may also act on this stress through behavior symptoms ranging from simple carelessness, to impulsiveness, to insensitivity and animosity in their dealings with others, to acts of misconduct (fig 6-2). Growing evidence points to how many of the symptoms for stress overlap with

symptoms caused by mild traumatic brain injuries secondary to the concussive effects of nearby explosions. This reinforces the need for preventive strategies, education, awareness, and interventions appropriate to the cause or source of stress.

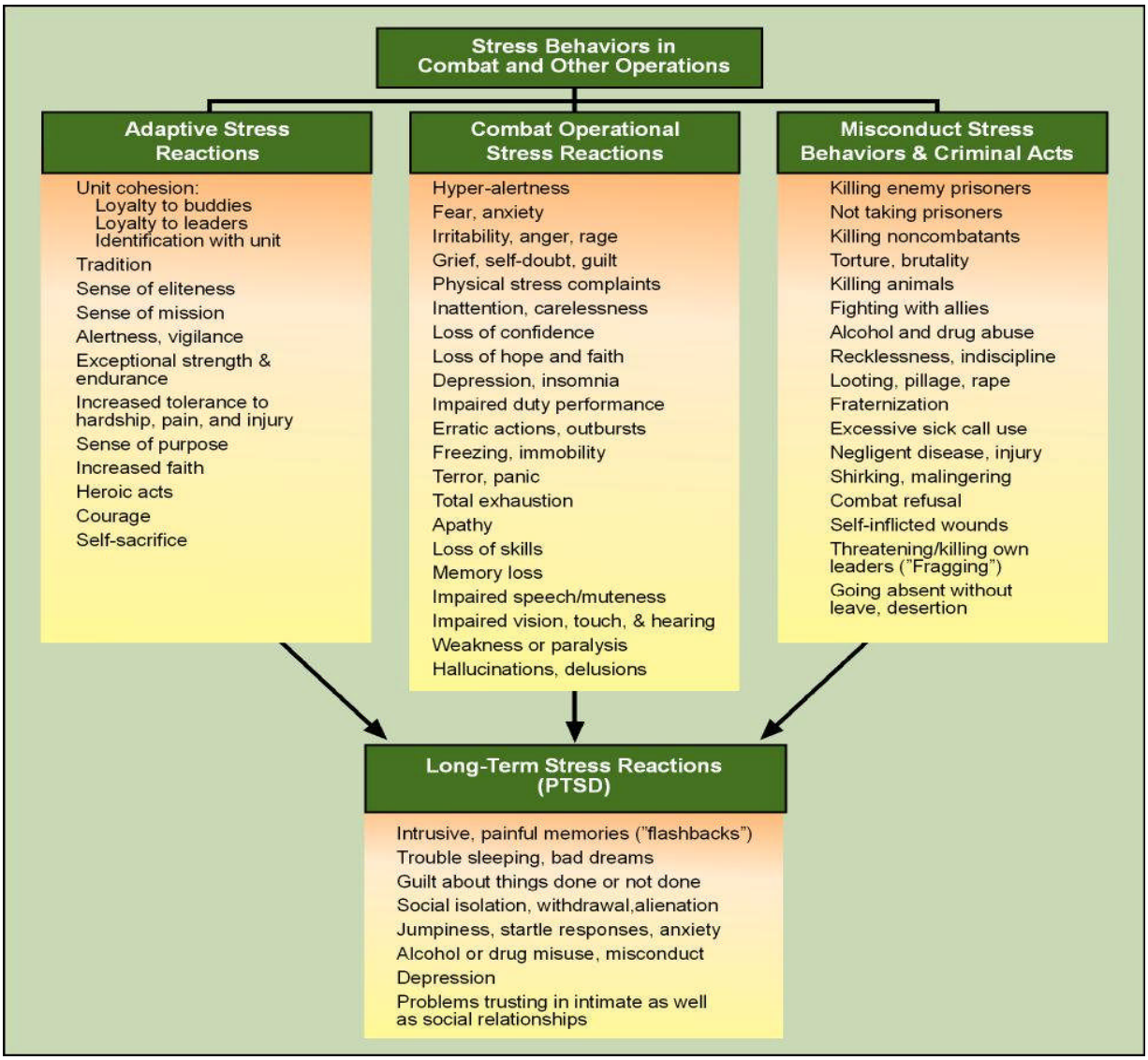

Figure 6-2. Stress Behaviors in Combat and Other Operations

Despite the numerous sources of stress they encounter, most Soldiers do not become psychological casualties. Stress is an integral part of military service and leaders must assist Soldiers to develop mechanisms to cope with stress in training and on operations. COSR occur when intense or prolonged stressors deplete the Soldier's coping resources creating a sense of helplessness, fear, and isolation. One of the greatest stressors is the fear of death or injury, but the fear of letting fellow Soldiers down may be even greater. For leaders the mere chance of sending subordinates to their deaths is an enormous stressor that may be more powerful than the fear of personal injury or death.

> You can reach into the well of courage only so many times before the well runs dry.
>
> Ardant du Picq, *Battle Studies*, 1870

Fear is a rational response to abnormal experiences and generates physiological reactions as well as a psychological and emotional one. The immediate response to fear classified as "fight or flight" is instinctive and essential to survival. Normal stress reactions can have a positive impact and help Soldiers function better by increasing alertness, cognitive processing, strength, and endurance. In combat however, fear of death and serious injury is omnipresent and exhausting, constantly drawing on the Soldier's ability to maintain the courage and the will to fight. The effects are cumulative and as Lord Moran asserts in his classic work, *The Anatomy of Courage*, on his experiences in World War I.

Moran observed that psychological casualties occurred both from brief but intense combat and from prolonged exposure; findings confirmed by other armies and in subsequent conflicts. Adding even stronger emphasis, the Army's report on combat exhaustion in World War II concluded:

> There is no such thing as "getting used to combat." . . . Each moment of combat imposes a strain so great that men will break down in direct relation to the intensity and duration of their exposure . . . psychiatric casualties are as inevitable as gunshot and shrapnel wounds. Most men were ineffective after 180 or even 140 days. The general consensus was that a man reached his peak of effectiveness in the first 90 days of combat, that after that his efficiency began to fall off, and that he became steadily less valuable after that until he was completely useless . . . .[157]

Not all deployed Soldiers face the same risk of injury or death. Soldiers who spend a significant amount of time in proximity to the enemy and populations are at the greatest risk. Being in mortal danger everyday, 10-12 hours a day for weeks and months on end is physically and mentally draining. Arguing that the intensity of combat in the current and future

environment is unlike the intensity of earlier wars "demonstrates a lack of appreciation of what constitutes combat in general, and ignorance as to the level of combat Soldiers and Marines are experiencing."[158] Today's junior leaders have spent two to three of their first years in the Army deployed in a complex evolving environment for which there are no clear school solutions. Frequently, they must learn the lessons of complex warfare while fielding unfamiliar equipment and bearing responsibility for what their subordinates do at all times.

Consistent with rotation practices in World War II and Korea, the *Mental Health Advisory Team IV Operation Iraqi Freedom 05-07, Final Report* strongly recommends establishing in-theater unit rotation policies. It supports a longer period of recovery rather than the in-country rest and recreation (that few combat troops were allowed to take) or the two-week individual rotation policy currently in effect in OEF and OIF.[159] *Steeling the Mind,* a separate RAND Corporation study, examines the psychological implications of stress in future urban warfare and agrees with the recommendation adding, introduce, and integrate replacements into the unit during in-theater rotations.[160] Allowing replacements to train with the veterans improves cohesion and unit effectiveness. Both of these recommendations are currently in place and will warrant integration in future operations.

Endorsing the findings of an earlier Walter Reed Army Institute of Research *Land Combat Study*, the Mental Health Advisory Team IV report also recommends shorter deployments because deployment length relates to mental health. Earlier conflicts indicated that shorter deployment periods provided greater hope among Soldiers that they might survive unharmed. The Walter Reed study also found that the current dwell time between unit deployments is insufficient for Soldiers to reset mentally. As a result, even though second time deployed Soldiers are generally older, more senior, better educated, married, and more experienced—factors thought to be mentally protective or restorative—they are twice as likely to screen for mental health problems as those deployed for the first time. It is simple human nature to breathe a sigh of relief at the end of a combat tour. It is similarly natural for returnees to wonder if, having survived the first time, their number might come up the second or third time. The percentages of all Soldiers screening for potential mental health problems is increasing as OEF and OIF continue. This finding has major implications for the Army operating in future environment characterized by near persistent conflict and an OPTEMPO that assumes multiple operational deployments in a career of service for both active and reserve component Soldiers. This finding also confirms the earlier World War II study that Soldiers do not "get used to combat" and that previous experience does not "inoculate" Soldiers against COSR.

6-3. Burnout

Complicating leader's efforts to build cohesion is the phenomenon of "burnout." Experts consider burnout as emotional exhaustion, interpersonal insensitivity, and a diminished sense of personal accomplishment that occurs after prolonged exposure to stress. Personnel feel psychologically drained, emotionally exhausted, and believe their coping resources are breaking down. They feel incapable of dealing with any additional stress. The signs and symptoms of burnout and COSR are similar. The differences are quantitative rather than qualitative, differing in the intensity of the stressor (combat versus home station) and the response. Burnout in military personnel has received little attention but it poses a threat to morale, cohesion, and unit effectiveness in peacetime *and* in wartime. This is especially true in the current environment. The understaffed generating force and operational units have reduced time after returning from deployment to reset for the next deployment.[161] This presents an additional challenge to Army leaders in considering the total workforce. As Army civilians and support contractors increasingly fill positions in the generating force, they too will be subject to the effects of stress and potential burnout.

> One day we hung around the motor pool 'til 1630 doing nothing, then suddenly we got word that we had to prepare 12 vehicles to be turned in for scrapping, and they had to be ready by 0730 the next day. So we work all night on trucks that are to be junked. Is this the mission?

When burnout develops, it is not because exposure to stress increased, but rather because the ability to cope with stress has eroded. When superiors do not properly manage subordinates' time, working long hours can be especially frustrating for subordinates. Inadequate planning and poorly executed or irrelevant training weakens morale, reduces confidence in leaders, and leads to burnout. Leaders' expectations that subordinates work unnecessarily long hours can also lead to burnout. Expecting subordinates to do more than is possible within the constraints of time and resources is another cause of burnout as is the stress that stems from an incompatibility between work and home responsibilities. The demanding nature of military service often conflicts with family responsibilities. For all military personnel, changes of assignment and temporary duty create additional friction between work and family responsibilities. Collectively the effects of burnout affect performance, retention, commitment, cohesion, morale, and physical health of military personnel. Predictably, prevention of burnout involves the same approach as COSR, competent and caring leaders who create a command climate where Soldier morale and cohesion can grow.[162]

6-4. Conclusion

Combat and operational stress and burnout are part of the unavoidable nature of warfare and military service. They are at the extreme end of stressors as the carnage and horror of war have few equals in everyday life. While first responders such as police, firefighters, and emergency medical technicians see similar extreme life and death experiences, the Soldier in combat faces them for long periods of time, and, due to a future of persistent conflict, will likely face these

conditions multiple times in a career of Army service. These conditions also apply in large measure to Army civilians and contractor support personnel.

This chapter focuses on the deleterious effects of stress far more than on the strengthening effects they can produce in many individuals. Certainly, the desirable characteristics of the "hardened" warrior are worthy to exploit, but the Army must continue to seek means to ameliorate the negative effects. The Army already deals with Soldiers and veterans suffering from post traumatic stress disorders from earlier wars. Ideally, in the future the Army will develop more and better ways to prevent the negative effects of combat and operational stress. In any case, the Army must treat Soldier fitness holistically accounting for the effects of stress morally, physically, and mentally.

Within these three components of the human dimension, this concept suggests many actions that the Army might take to deal with a future of persistent conflict. The toll of persistent conflict on Soldiers and the shifting demographics of available recruits help to reinforce the importance of assessing, selecting, and educating individuals to ensure their readiness to face the rigorous demands the future. The process of selecting the people who will make up the Army of the future is the subject of the next chapter.

Vignette

Darwin, Australia

Lieutenant Colonel Stacy is preparing his battalion for the upcoming mounted vertical assault on AO Aerie when he gets the order changing their destination to AO Foxden. Stacy is unfazed since they'd planned for this as a branch plan and would be able to rehearse the operation while in the air en route to Sumatra. Meanwhile, something less easily resolved troubles him. His Executive Officer, Major Sam Kurtis, has asked to be relieved. Kurtis was a rock solid officer who had never manifested any problems in the past. He was one of the most experienced majors in the brigade, having served two combat tours in Iraq and one in Afghanistan. Stacy is baffled and seriously worried. His operations officer can step up to take Kurtis's position and the assistant S3 is a strong captain. Stacy's dilemma is the effect this will have on Kurtis's career, his own self-esteem, and his reputation, not to mention his family.

"Sir," Sam Kurtis had said physically trembling, "I don't think I can handle this."

"Handle what, Sam? Are you all right? Lord knows we haven't had much rest lately."

"It's not that, Sir. I'm shaking inside and out just thinking about getting into a fight again. You know, I've been wounded twice and have all those ribbons, Sir, but the thought of hanging my butt out in another firefight makes me want to puke."

"You of all people ought to know we all feel that way, Sam."

"It's not the same, Sir. You can't understand. I mean, I survived those other tours. I can't get it out of my head that this will be it for me. You know how people sometimes say they know they're going to die? Well, I dreamt it on the flight. It was so real! Sir, you've just got to relieve me. I'm going to be no good to you anyway. I can't do this. I just can't…." Kurtis said, tears filling his eyes as he turned away from Stacy stifling a sob.

"Okay Sam. I know you won't talk to the chaplain, but it wouldn't hurt. Here's what I want you to do. Go see the doc now. Tell her what you've told me and ask her to do a quick medical evaluation on you. I'll ask her for a recommendation. I'm not going to relieve you, Sam, if I can help it. You are too good a Soldier and a man to let this get the best of you. Talk to the battalion surgeon, Sam. That's an order."

Stacy knew his little pep talk was not going to be enough, but he had to do something to save Sam from breaking down and ruining his career and his life. Just the same, though, he thought about Sam's premonition of death. Was there anything to it or was it just a bad dream? Kurtis was not only one of the best majors in the brigade, but one of the best physical specimens in all of TF Green. Sam outran men ten years his junior. His scars rippled when he knocked out a dozen pull ups without even breathing hard. What had gotten into this guy, Stacy wondered, remembering the briefing they'd had on burn out and COSR? It was not an unusual problem with some of their combat veterans, but this was his XO, his friend, and his sister's husband.

Captain Susan Coleman, the battalion surgeon, came to see Stacy a couple of hours after her meeting with Major Kurtis.

"Sir, how's it going?" Coleman asked.

Stacy looked up, smiling. Susan Coleman looked like an eager teenager when she found out she was going to the National Training Center with the battalion. She was just as excited about deploying. Coleman amused the more experienced officer, but she was definitely a good doctor. The battalion physician's assistant testified to that after Coleman treated the A Company Soldier who fell off his FSV-G and broke his leg.

"You talked to Major Kurtis, doc?"

"I did Sir. He's pretty shaken. I pulled up his file and searched for any previous stress injuries, but he's the healthiest thirty-five year old on paper—I mean on the screen—that I've seen lately. I'm monitoring his vitals as we speak. BP is up as is his pulse. I don't see any indication of physical problems from his wounds. The blood and urine samples tested normal as well. I can't believe how quickly we can get the results from the lab in the states, but that's not what you care about now."

Stacy found Coleman's chatty diagnosis inclusive, but he needed to ask the hard question.

"Is he fit for combat, doc? You know, COSR-wise. Is he a candidate for further evaluation? He told you what he's asking me to do, right?"

"Relieve him? Yes, he did mention that. I'm not a psychologist or psych guy Sir, but I'd say the major is pretty close to burnout. He's tired and very agitated. It will only get worse unless he gets some rest. You want my recommendation, Sir?"

Stacy didn't answer right away, thinking hard about his options. He'd need to tell the brigade commander about this one way or another. If Sam was sick, if only it was the flu or something concrete like that…. Okay, Susan, what do you say?"

"I can prescribe some pretty strong medicine to settle his nerves. It will make him drowsy and justify leaving him here. I'll write it up as fatigue and recommend further evaluation without mentioning his request to you."

"Cover it up? Cover up his asking to be relieved? I can't, no, I won't do that. Write your report and I'll request an evaluation by the brigade Combat Operational Stress Control Team. I'm going up to brigade. Oh, and thanks, Susan. I appreciate your effort to save Sam some face here, but, if he needs help he's going to get it."

Major Sam Kurtis manifests the cumulative effects of combat operations stress reaction. He represents everything a Soldier should be in terms of moral, mental, and physical fitness. As a decorated combat veteran, he has "seen the elephant," and should be better prepared than those entering combat for the first time. Yet Kurtis, for all his toughness, competence, and demonstrated bravery, is a victim of repeated exposure to the horrors of war that, for him at least, built up to the point of burnout. Lieutenant Colonel Stacy may have been more inclined to shelter his brother-in-law than another officer in Kurtis's position, but he makes the right decision. The Army must find ways to treat post traumatic stress victims in a way that does not automatically terminate their careers. One option is to treat these conditions like other injuries and illnesses with the intent of returning the Soldier to duty if possible. This chapter emphasizes prevention, but Major Kurtis presented absolutely no indications of his eventual collapse. In this case, the brigade commander might offer Major Kurtis to the TF Green commanding general as a limited duty staff officer who could help monitor his battalion's coming combat operation.

Required Capabilities

- The Army must develop doctrine and TTPs that recognize and integrates measures for COSR prevention into planning, preparing, and executing future full spectrum operations.
- Army future Modular Force commanders must have the capability to provide adequate mental health care providers who can monitor moral, cohesion, and unit mental health status across the deployment cycle.
- The Army must integrate measures to prevent COSR into the pre-deployment training programs.
- Army training exercises must habitually integrate the stressors Soldiers will commonly encounter into all training and training assessments, with emphasis on the CTCs.

- Officer and NCO professional education must deliver progressive and sequential training on those leadership skills needed to prevent COSR casualties.
- The Army must have the capability to identify those applicants with obvious psychological factors that should eliminate them from military service.
- The Army must provide the facilities at home station and in the AO that positively affect Soldier morale (such as, Department of Family and Children's Services; morale, welfare, and recreation; Soldier living quarters, training and maintenance facilities, family housing, force protection, and health care).
- The Army must provide the capability—education, training, facilities, equipment, and time to maintain an optimum physical fitness.
- The Army must have the capability to remotely monitor a Soldier's physical signs of stress and deliver on demand pharmaceuticals and other treatment to immediately reduce or mitigate those physical and mental stress factors.
- The Army must manage Soldiers' assignments so that Soldiers have many opportunities to recover from COSR and other stress factors.
- The Army needs adequate numbers of combat operational stress control detachments to provide a minimum of one per division with teams to each BCT or brigade.
- The Army must establish mental health support for spouses and children affected by a Soldier's COSR. This is critically important for reserve component Soldiers who return to their civilian lives upon redeployment and demobilization.
- The Army must focus more on developing hardiness and resiliency, on how leadership impacts dramatically on combat stress reactions, how urban warfare produces more casualties and why.

Questions for Further Exploration

- Are current stress control TTPs and interventions effective in preparing Soldier psychologically for combat and reducing COSR casualties, and are efforts to reduce the barriers to seeking medical care effective?
- Why do most Soldiers adjust well to the demands of combat while a few develop COSR injuries? How can the Army amplify the benefits of stressful situations?
- Does the type of operation (major combat operations, COIN, peacekeeping, humanitarian) affect the warrior spirit, morale, unit cohesion, and COSR?
- Is the Army accurately capturing the incidents of COSR injuries?
- How great an impact does physical fitness have on reducing a Soldier's susceptibility to COSR and other stress factors?
- What emerging or future technologies can detect building stress and provide on demand mitigation or treatment? Consider both physical and mental stress factors.
- How does a Soldier's personal morality impact on susceptibility to COSR and other stress factors? How can the Army mitigate the cognitive dissonance between combat actions and the values and ethics ingrained in the Soldier through his cultural/religious background and/or his Army education and training?
- What educational approaches will best enable a Soldier to understand stress? Will such an understanding help a Soldier anticipate and address the physical, cognitive, and moral challenges generated during training and operations?

- How can the Army teach the distinction between “killing” and “murder” to Soldiers so they realize they are not violating the Old Testament commandment “You shall not commit murder” when they follow the rules of engagement as Soldiers?
- How can the Army use the supportive power of group solidarity, love of comrades and esprit de corps that keeps Soldiers fighting effectively in combat to also facilitate their healing after redeployment?
- How will the Army overcome the challenges associated with “part-time” nature of the reserve component to employ the concepts addressed in this chapter?
- What can the Army adapt from emerging findings about stress buffers such as neuropeptide Y in special forces community, the use of propanolol for easing PTSD memories, and other findings related to the enzyme, known as PKMzeta that has been identified as important for sustaining memories throughout the brain?

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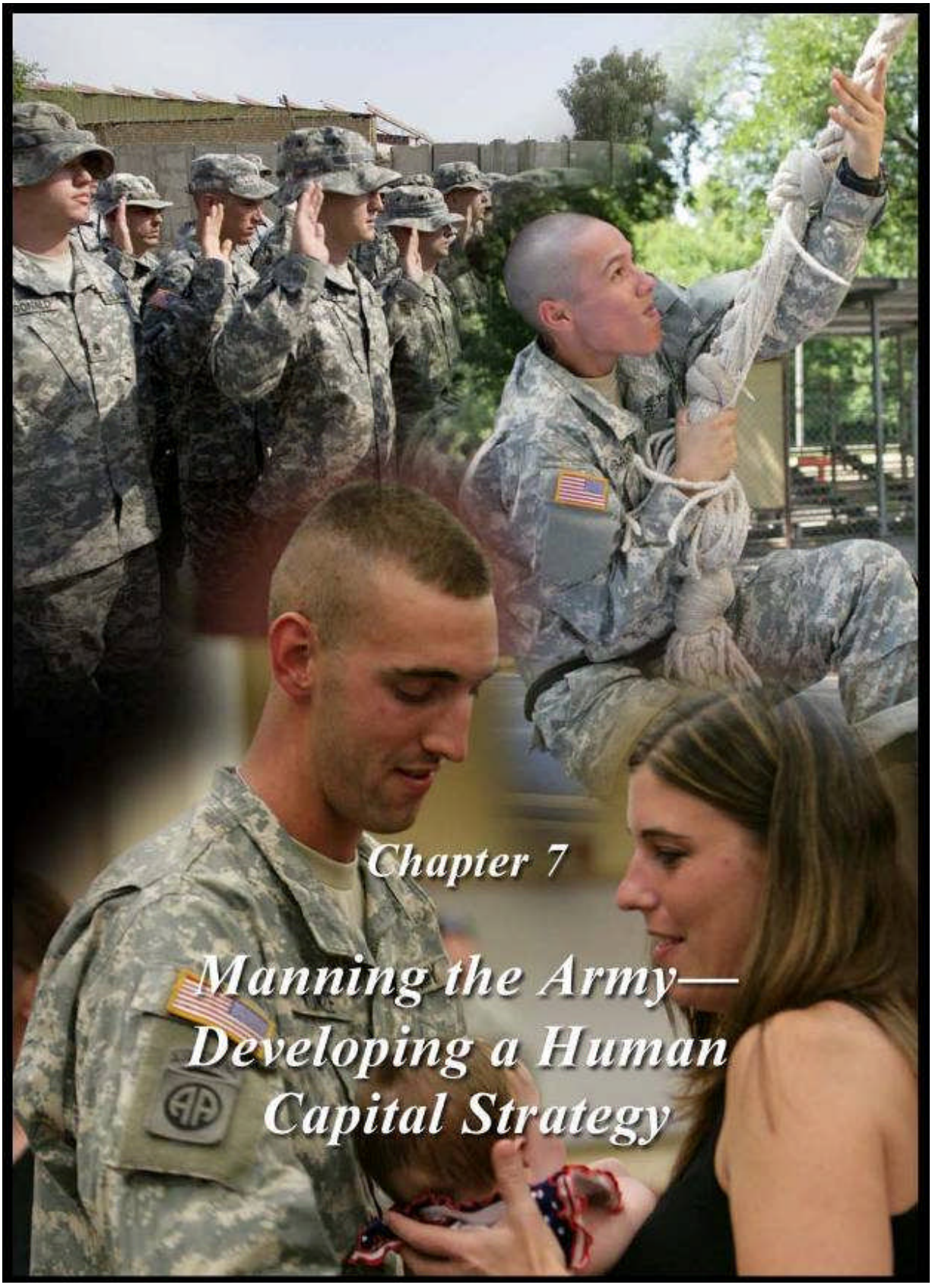

Chapter 7
Manning the Army—
Developing a Human
Capital Strategy

The Army recruits Soldiers. It retains families.

The Army Family White Paper, 1983

Chapter 7
Manning the Army—Developing a Human Capital Strategy

7-1. Introduction

The Army responds to national and military strategy changes. It has also led the way in many major social adjustments throughout history. In recent years, Army transformation efforts resulted in personnel policy changes to stabilize Soldiers in their units. Given the complexity of the future operating environment, and its impact upon the triad of moral, physical, and cognitive components of the human dimension, the Army must continue to examine existing policies and practices for staffing the force.

While global trends will shape the environment in which our Soldiers may operate, domestic trends will shape the candidates from which the Army must draw to staff the future force. Immigration, education, physical and moral fitness influence the domestic environment. The Army must consider this environment in order to understand the capabilities and limitations of future recruits while, at the same time, acknowledging their expectations.

While current personnel systems have served the Army and its Soldiers well, the potential strain of decades of persistent conflict will likely fail to meet future needs. The dual challenges of new force structure and continual deployments to multidimensional battlefields strongly suggest the need to modify the Army's personnel systems so that they more effectively embrace creativity, risk-taking, and flexibility. This chapter examines key processes of Army personnel management, which include accessions, assignments, promotions, and education. It then posits considerations for improving human capital management.

7-2. Background

Today's personnel management system selects, assigns, and educates personnel for initial and then continued service. The accessions system lays out standards based on systematic and tangible criteria to become an enlisted Soldier, warrant, or commissioned officer. The future personnel management system will be more responsive and better able to match specific skills with specific position requirements. It will be able to routinely manage, track, and assign personnel down to the skill identifier and additional skill identifier level of detail. Criteria for promotions are explicit, detailed, and common knowledge among members competing for promotions. In the lower ranks, the use of explicit criteria that depend on objectively measured elements, such as written and hands-on tests of skill and knowledge, physical fitness, marksmanship, successful completion of training, awards and decorations, and additional education, help to promote openness and fairness.

The enlisted personnel assignment system operates centrally and matches available, qualified personnel to position openings (faces to spaces). Although at times, Soldiers choose the location of their next assignment as a retention incentive, assignments typically occur independently of individual preferences, and, therefore, offer no significant opportunity for the chain of command to influence decisions. Officer assignments centrally made often take into account senior officer recommendations. Such recommendations also influence senior NCO assignments.

The third component, education and training, helps round out the Army's human capital strategy. Military training helps the individual build an identity with the organization while increasing unit cohesion along with understanding of the C2 system, and the importance of following orders. Military professional education and advanced training contribute to the development of leadership and communication skills and provide a thorough understanding of the roles, missions, equipment, tactics, and decisions required by those in positions of authority.

7-3. Recruiting the Force

For the near future, Army recruiters will face low youth unemployment, routine deployments, and fewer role models (men or women/or influencers) encouraging youth to join the military. As the Army fully implements the ARFORGEN concept the Army's accessions process must transition from a force structure-based system to a requirements-based system. The Army does set priorities for personnel fill based on unit missions and status, but still accesses against a relatively fixed force structure. Changes in target population demographics and recruiting environment, along with implementation of the ARFORGEN concept, may dictate changes in management practices, current accessions programs, accessions organizations, and policy or legislation.

Army concepts for the future outline a very demanding requirement for future Soldiers. They call for agile leaders and the ability to rapidly transition from major combat to humanitarian support. This will create a need to adjust continually all aspects of the DOTMLPF domains. As organizations change so must the personnel system tasked to staff them. As training requirements change to meet new doctrinal guidelines, leader development must also change. As technically advanced as the future Modular Force might become, its advances cannot exceed human limitations. Future generations will continue to be heavy users of existing and emerging technologies. Those who have good basis in analytical skills will be able to apply technology at a much higher level. Those lacking this solid foundation may be limited to very basic application of increasingly complex technological capabilities. Thus, the Army has two diverging sectors of population from which to access Soldiers. When it comes to warrant officer accessions in the future, the Army must commit significant training and education resources to access, grow, and sustain the technical expertise of the Army's warrant officer corps. With an increasing requirement for experts in just about every field, the Army will need to grow rather than simply assess warrant officers from the NCO corps. This will require a commitment of resources to the warrant OES which has historically only been the norm for a few select branches.

Several demographic factors will affect future recruiting. The Army must be able to draw from all strata of society. Diversity should positively influence the Army's ability to staff the

future Modular Force. Declining physical fitness will continue to be a reflection of a more sedentary lifestyle and increasing obesity. Clearly, the Army can develop recruits through rigorous training that can meet Army standards, but this requires more time and resources.

Perhaps the most troubling and the one area that the Army cannot directly affect is the increasing trend toward single parent families and, particularly, absent fathers, creates a shortfall in good role models for youth to emulate. Absent the traditional role of the father, one that has not been universal in the first place, American youth end up looking to other individuals, both good and bad, for people to emulate. This is a problem for an institution challenged with transforming individuals into trained, competent, and inspired Soldiers. So much of the socialization process occurs before an individual enlists or enters an officer training program that the Army's ability to influence entry level Soldiers is a definite challenge.

Consistently highlighted in previous chapters is the importance for Soldiers to have a high level of reasoning ability. While the Army values higher level thinking and decisionmaking, maintaining this cognitive quality leads to the real question facing tomorrow's Army—what type of individual does the Army want to recruit?

How will the Army want (or be willing) to attract the right mixture of the population? The Army leadership has struggled with this "build or buy" paradigm since the inception of the all-volunteer force.

The Buy Option

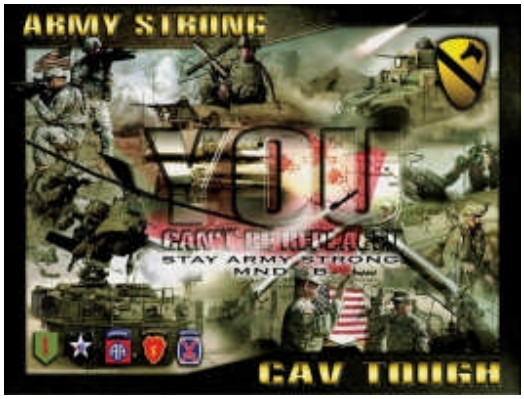
Some intelligent young people (those with the strong cognitive skills the Army requires) when contemplating career choices tend to view the Army as a less attractive option than civilian positions. To attract this group of people the Army uses a buy strategy. This can either be monetary—an approach already becoming prohibitively expensive—or incentives of intangible value. The two primary mechanisms to increase the value proposition are to change the product or alter the price. Either of these options will accomplish the goal of attracting the highly technical, cognitive applicants.

When applying the buy mechanisms, an assessment must be made of who influences the applicant's decision to buy or not to buy. The real buyer may be the parents (especially mothers) who resist the idea that they should be willing to sacrifice their sons and daughters in the name of national security. The Army must improve on its ability to make the sale to these "centers of influence."

Changing the Product

Changing the product (Army service) or better, the perceived value of Army service, is very difficult. Public law governs Army service, to a large degree. There are efforts underway that may help change the perception of Army service. The first includes increasing public appreciation of duty, honor, and service to county. The second is advocacy, and the third is encouraging public service.

Altering the Price



The second path within the buy option is to alter the price of Army service. Altering the price of enlistment is much easier than changing the product as most of these actions are within the purview of Army policies. Altering the price actions fall into two major categories, monetary or non-monetary.

Inducing individuals to serve by providing a monetary incentive has been one of the primary levers the Army has used since its inception over 200 years ago. While providing monetary incentives will continue for the near future, the cost of relying too heavily on this can become prohibitive. The Army offers monetary incentives in either current (enlistment bonus) or future dollars (Army College Fund). The Army must continue to find ways to defer costs into future dollar programs, and, more importantly, seek incentives that pay (fully or partially) for themselves. Current initiatives such as Army Advantage Fund and the Integrated Career Plan move in that direction. An enhanced or improved Thrift Savings Plan coupled with bonuses or tax advantages shows promise as well.

Non-monetary categories of incentives influence individuals to fill the needs of the Army. Examples of these include; time of service, MOS selection, and duty location. As the population evolves, perception of what individuals believe to be important (the price they are willing to pay) will also change, thus the Army must establish a process that balances the needs of the Service with the needs of individuals. One significant change that the Army is in the process of implementing is ARFORGEN. ARFORGEN can increase certainty in rotations and deployments that may serve as incentives to enlist or reenlist.

Increasingly, individuals will continue to demand more choice and flexibility in their career options. An example might be the ability for individuals to customize their enlistment package. While the Army must meet the needs of the service, sound personnel management practices will include some degree of individual choice and interaction.

The Build Option

For that sector of the population that does not initially meet the Army's expectation, yet has the desire to serve, the Army will need to implement processes that shape these candidates into fully qualified Soldiers. Although this has been the case in the past, future population demographics will drive the Army to develop a more comprehensive program. Obviously, an effective screening program will reduce this requirement, but, if the pool of suitable candidates shrinks, the Army must adjust.

The Screening Process

The Army currently screens applicants prior to enlistment. As per AR 601-210 Army screening vehicles either screen-in applicants with latent potential or, more commonly, screen-

out individuals with unwanted attributes. In the future, this aspect will become more critical to our ability to staff the Army. Examples of current screening out tools include the Armed Services Vocational Aptitude Battery testing, background checks, or verification of certain medical conditions. Screening-in tools allow individuals to enlist who typically do not meet initial entry criteria, but show potential through additional testing. Current examples of this type of screening in testing include assessment of recruit motivation and strength, assessment of individual motivation, and *March 2 Success*, a preparatory program to help improve test scores component of the Tier Two Aptitude Study. These and other tools emerging from research and testing will help the Army to overcome some of the socio-demographic factors introduced earlier. Many current screening tools reflect requirements and ideas from past recruiting needs and policies. It is clear that the Army must update these tools to reflect future needs.

Adaptive and Alternate Training Process

An adaptive and alternate training process will assist the Army in meeting staffing requirements. Adaptive training tailors to individuals with different developmental needs. Alternative training programs are those not in the normal institutional Army setting. Some examples of these alternatives include attending civilian community college in lieu of IET, *March 2 Success*, Armed Services Vocational Aptitude Battery prep school, and physical fitness trainers in the Future Soldier Training Program. Programs like these develop individuals to meet initial Army standards prior to accession onto active duty.

Other Options

In order to accommodate an ever-changing society, the Army should consider tailoring its incentive packages to a cafeteria-style approach. Offering a combination of monetary and non-monetary incentives where applicants can choose from bonuses, health care, sabbaticals, and telecommuting opportunities that best fit their situation is a good human relations practice in the civilian sector. Incentives that can assist families and that transfer to survivors will also be attractive alternatives.

Refining traditional incentives to meet future needs will allow the Army to compete for qualified individuals. For example, initial enlistment bonuses channel individuals into the correct MOS, especially high demand and low density positions.

Efforts to make enlistment an interactive process giving individuals greater control over their choices will continue to be an important tool for the future. Current initiatives include Army Career Explorer, the SGT STAR avatar,[163] and the Future Soldier Remote Reservation System. Within five years, the Army hopes to develop a system that allows individuals to apply for Army service on line.

The Army must consider expanding its direct entry recruiting at potentially higher grades. Technically skilled individuals, along with medical and legal personnel, benefit from direct entry recruiting at higher grades. For example, a highly trained automotive mechanic takes many years of training and experience to achieve master technician status. Recruiting this type of skilled individual can reduce costs. To lure such individuals away from their secure civilian occupations the Army will need to compensate them above what they were earning or provide other commensurate incentives.

Current policies limit the ability of Soldiers to move readily between Active Army, Army Reserve, and National Guard service. While the continuum of service initiative attempts to answer this, the Army must develop and institutionalize actionable programs to make this a reality.

The ARFORGEN model influences personnel actions significantly. The model attempts to cycle forces through operational readiness in order to maintain the required number of BCTs necessary at any given time in a high state of readiness. Synchronizing the rotation cycle of three years and the staffing cycle is paramount. This requires close management to transition from legacy personnel policies to ones that address the needs of Soldiers in the future. ARFORGEN may provide predictability on deployment as well as periods of recovery that contribute significantly to Soldier and family morale.

Recruiting Summary

Changes to the future personnel systems should consider active sampling from the field to provide feedback on the effectiveness of the programs. This will require a degree of flexibility in the system to respond to feedback. The Army must continually adjust the "buy or build" paradigm while working to change the perception of Army service, and making the investments to encourage the right people to join the service. The Army must also provide training to develop individuals who do not initially meet standards. Lastly, the focus of resources and effort needs to be on providing a user friendly menu of enlistment options and processes.

7-4. Retaining the Force

Promotion and selection systems wield great power in retaining a qualified professional all-volunteer force. Promotion and selection laws and policies reinforce the values of the organization and make clear what the Army considers necessary for advancement. Promotion and selection systems require scrutiny and or modification to assure that the Army selects the most qualified individuals in an inherently fair manner.

Promotion profoundly influences how Soldiers see themselves, their peers, and their seniors. While promotions for NCOs in the early grades involve leaders who have actually seen these

Soldiers in action, impersonal centralized boards select officers for promotion. Some perceive this as a process of promoting files rather than officers. A promotion process that balances local and centralized input could provide a more effective process. The leadership chapter addresses this as well as command selection as systems worthy of scrutiny for potential modification in the future.

The Army should consider modifying the promotion system from the current "up or out" to a "perform and stay" system. Such changes would require congressional action and would affect other Services. Policy changes could include expanding promotion zones and allowing officers to choose their promotion consideration timeframe within time in grade milestones; adjusting pay scales for officers remaining in grade longer; and, offering non-monetary incentives, such as geographical stability. The Army could also develop multiple career tracks for officers to allow a better match between career track and individual skills and preferences.

Performance appraisals should place greater emphasis on innovation, creativity, and adaptability. The Army might consider adding a 360-degree appraisal across the force with subordinates, peers, and supervisors providing input about a candidate's receptivity to ideas from below and efforts to put them into action. A 360-degree appraisal would not replace traditional evaluation methods, such as test scores and fitness reports, but provide supplementary information about dimensions of performance. This is a highly controversial proposal rife with pitfalls, but one that requires consideration if the Army is to change to meet future challenges.

Promotion and pay are key motivators for retention. Leaders in key specialties that require extensive education or training with slower promotion opportunity require more options for retention. The Army should explore a system to accommodate pay increases without promotion, based on specialties where grade progression is slower and time in grade more pronounced. This could take the form of tying pay increases to assessment of performance creativity, innovation, adaptability, and effectiveness.

All of these suggestions have merits and faults. Allowing some to serve a longer time in grade may enable retaining highly qualified individuals longer, but the downside might be stagnation and a reluctance to adapt to changing requirements. Decentralizing officer promotions may produce better choices based on recent observation of candidates while on the job. It can also lead to favoritism and an unhealthy competition in a relatively smaller cohort. As the Army explores ways to meet the requirements of the future Modular Force it must be open to all of the ideas mentioned above, as well as other innovations.

Personnel systems that support an Army human capital strategy must balance the needs of the force as a whole and the needs of the individual. In this regard, the readiness of units and the ability of the institution to support operational forces are more important than the needs of the individuals that make up the force. Additionally, the evaluation of potential leaders must include a method to identify those who fully understand the intricacies of command and possess the intuition and innovativeness for success.

Through the continuum of service initiative, a flexible range of personal extended leave programs would accommodate the needs of the individual and the Army. This would

demonstrate an understanding of Soldiers' personal commitments and responsibilities, much as Family Medical Leave Act functions in the civilian workplace. For example, flexibility could allow a leader to take a sabbatical to care for aging parents and then permit him or her back into the force in grade and stop the "clock" for promotion to remain competitive for promotion. This idea can also encompass breaks in active service to work in other civilian capacities such as with industry or other government agencies. Soldiers can lend military experience to sectors outside the military, and, in turn, leaven the military should they return to active service in uniform.

The continuum of service concept can also support the Army's wounded warriors and take advantage of their, training, education, and leadership skills. The operations of the last few years have produced a group of severely wounded Soldiers who opt for continued military service. Some of these Soldiers have even been able to return to operational units with state of the art prosthetics. Those too disabled to return to operational units can contribute and should be able to reach the highest levels of the Army by serving in the generating force. Another possibility is serving as a civil servant before returning to uniformed status. Optionally, wounded warriors could also advance through the civil service ranks to become senior Army civilian leaders. The Army should make routine what it has done in the past by exception in supporting and retaining on active duty leaders of exceptional potential. General Eric Shinseki (Ret.), General Frederick Franks (Ret.), and Brigadier General Stan Cherrie (Ret.) were all severely wounded in Viet Nam. All three and numerous others went on to make major contributions to the Army and the Nation. The Army cannot afford to overlook the potential of Soldiers who have given so much and attained the skills, leadership, and combat experience essential to the Army.

7-5. The Army Family

The Army family has a major impact on combat readiness today and there is every reason to believe this impact will be just as critical in the future. Experience and extensive research demonstrate a synergy between the unit, the Soldier, and the family that can positively affect retention and commitment to the unit, the mission, and the Army.[164] The quality of the family life and satisfaction with the Army affects the Soldier's performance in the unit and successful units increase Soldier satisfaction contributing in turn to a healthy family life.

Recognizing the importance of family support programs to sustaining an Army trained and ready to meet the challenges of the future operating environment, The Secretary of the Army, Chief of Staff, and Sergeant Major of the Army recently introduced the *Army Family Covenant* (see fig 7-1). The covenant recognizes that the Soldiers strength comes in large measure from the strength of their Families. The covenant represents the Army's commitment to providing Soldiers and families a quality of life commensurate with their voluntary service and daily sacrifices. The "Army Soldier-Family Action Plan" and "Army Medical Action Plan" codifies the means by which the Army will fulfill the covenant. The covenant also ensures the rehabilitation and reintegration of the Army's wounded warriors back into society.

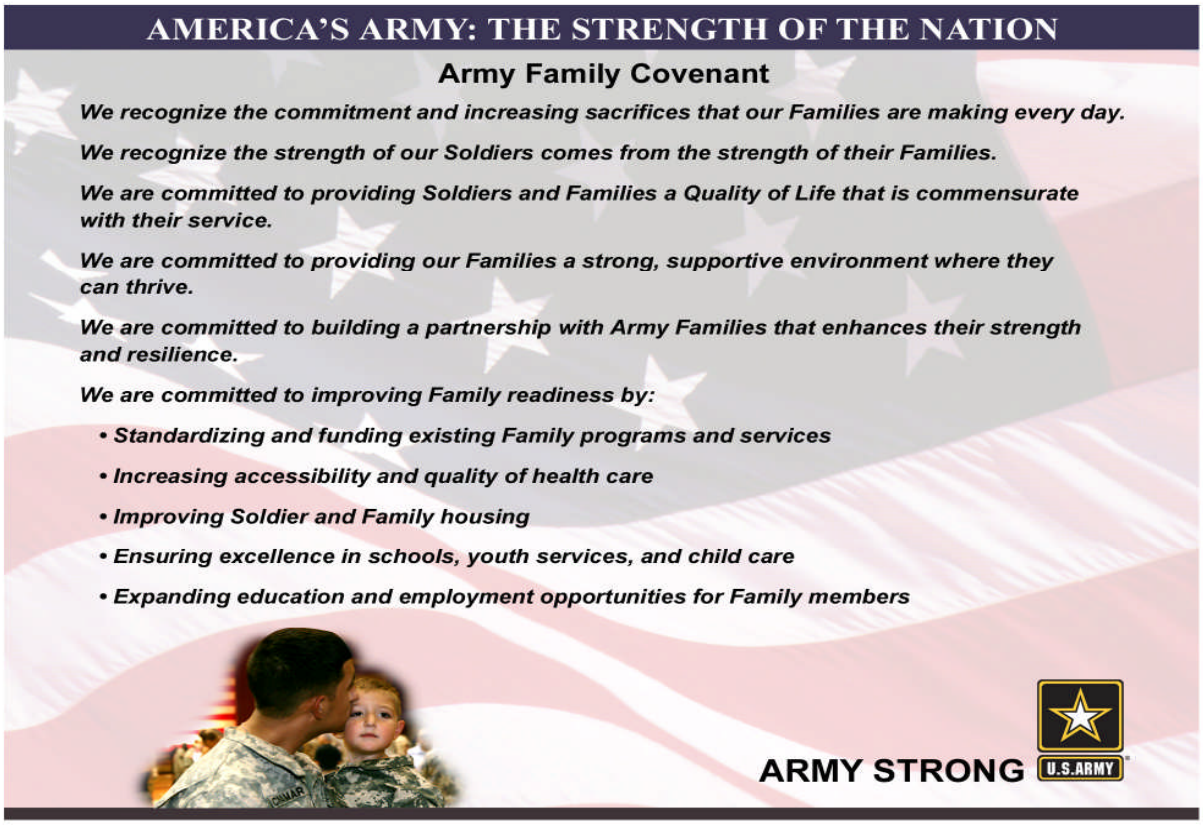


Figure 7-1. The Army Family Covenant

Future persistent conflict will increase demands on Soldiers and their families. It is the actions of leaders that have the greatest impact on reducing military and family conflict, improving family satisfaction with military life, and enhancing unit readiness.[165]

The Soldier, the Family, and Unit Readiness

Current trends indicate that Army families in the future will become ever more like their civilian counterparts. They will represent ethnic and structural diversity and face commonly stressful issues such as finances, child care, and physical and emotional challenges, and have increased access to family, spiritual resources, community services, and friends. Also, like their civilian counterparts, recent societal trends indicate that military families are less tolerant of the demands of work at the expense of family.[166] Yet, military families remain unique in that they will continue to face the additional and required challenge of adapting to multiple deployments that bring the stress of family separations, reunions, risk of death or injury, relocations, long work hours, and isolation. Future Army families will be similar to today's Army families in that they will likely face a comparable OPTEMPO characterized by frequent deployments and separations.[167]

These new conditions will also apply to reserve components. In the future, they will no longer be a strategic reserve mobilized only in national emergencies. They have assumed the role of operational reserve employed on a cyclical basis to allow the Army to operate more effectively in the future operating environment. Increased deployments and family separations will require an increased commitment from employers, Soldiers, and their families. National Guard and Army Reserve families face a unique set of stressors related to comparatively short periods of preparation. These families desperately need information, not only about deployment but also finances, tri-service medical care or TRICARE, (the health care program serving active duty service members, retirees, families, survivors, and certain former spouses worldwide), and social support resources for military families. Finances may also be a significant source of stress for these families, as military pay may not match civilian pay. There may also be concern that the service member's job will not be available upon return, despite federal legislation designed to ensure job protection for reservists.

> Man has two supreme loyalties - to country and to family.... So long as their families are safe, they will defend their country, believing that by their sacrifice they are safeguarding their families also. But even the bonds of patriotism, discipline, and comradeship are loosened when the family itself is threatened.
>
> William Tecumseh Sherman
> General, United States Army
> 1864

The unit and the family compete for the Soldier's time, energy, and emotional commitment. Competing demands of family and the Army may exceed the Soldier's ability to meet expectations, and, ultimately, force the Soldier to choose between the two. This tension can affect family satisfaction with Army life, the Soldier's decision to remain in the Army, his or her performance in the unit, and ultimately unit readiness.

The Soldier bridges both institutions; the family and the Army. However, today's Soldiers identify more strongly with the family than with the Army, ". . . [i]f there is a tug of war between the military and the family, it is the family that usually wins."[168] The Army therefore must support a culture and an environment where its expectation of the Soldier is consistent with the expectations of the family. A Soldier's ability to view his unit and family as complimentary rather than competitive strengthens the belief that he is an effective Soldier and a good family member.

When unit leaders understand and address family issues in a positive way as a unit concern rather than consider these problems a distraction, enhanced family adjustment, and commitment to the military can result. Army leaders need to understand the factors known to influence family member well-being, military life satisfaction, and support of a Soldier's decision to continuing serving. These factors include length and predictability of duty hours, deployments and family separations, permanent change of station moves, unit communication with families, and unit support during temporary family crises. The commander can influence many of these factors.

Studies show domestic problems in the home can result in decreased combat effectiveness and increased risk for death on the battlefield. Soldiers who had experienced certain marital difficulties or stress in their personal relationships were at especially high risk to suffer combat operations stress reactions.[169] Concerns about family well-being and a sense of helplessness will always exist in deployed Soldiers but if the family is properly prepared to cope with separation and supported by the family support network, then the Soldier will have the confidence that they can manage independently freeing the Soldier to concentrate on the mission.

Developing this level of confidence and trust presents a significant challenge to unit leaders. Military leaders must be able to assist Soldiers' and families having trouble and at the same time ensure that the unit's mission is accomplished. Leaders require the skill and knowledge to direct Soldier and family members to military and civilian services designed to correct or mitigate family related stress. If ignored, family issues will adversely affect the Soldier's performance and reenlistment, and unit readiness and performance.[170] Leaders of units who respected and trusted subordinates, made off duty time predictable, treated Soldier and family problems as unit problems, and fostered family readiness groups, groups found that attention to family support added to the Soldier's warfighting capabilities.[171]

The Soldier, the Family in the Future

In the future operating environment, the structure of the Army and the way it trains and operates will continue to evolve to meet new and unpredictable challenges. The Army will continue as all volunteer force. The majority of the Army, especially officers and NCOs, will be married. Demographic changes in the composition of the force are likely to include increases in single parents and dual-career couples, and the increased requirement for family separations due to deployments. Therefore, the demands on the Army and the family are likely to remain significant and family life stress will remain an important readiness issue.

In recognition of these concerns, families will remain an important component of Army readiness policies and programs. Family issues affecting individual and unit readiness continue to play an important role in recruitment, retention, and commitment to the combat mission. Additionally, a strong healthy family life continues to be an important source of strength and support for Soldiers and their families and serves as a protective factor in preventing COSR.

The Army has committed and will continue to commit substantial resources to family well-being programs. These efforts reflect the view that family members are true partners in a

challenging but rewarding way of life, and not simply in a job. The family's responsibility in this partnership is to support the Soldier and other unit families and to participate in building and sustaining healthy, supportive Army units and organizations. The military's responsibility is to create an environment where families and family members expect a good quality of life and opportunities to realize their potential.

In order to achieve this vision, the Army must establish an environment where the Soldier and the family believe it possible to be a great father, mother, husband, wife, as well as a great Soldier. Army leaders through their knowledge, skills, abilities, and decisions will have the greatest impact on the lives of Soldiers and their families. Leaders must also recognize that they, "…must develop the expert knowledge and abilities necessary to create both the perception and reality of caring for families and understand how they can improve their Soldiers' and their Soldiers' families' satisfaction with military life."[172] If they fail, Soldiers both married and unmarried will be more likely to conclude being a Soldier is incompatible with family life and it is unlikely the Army will be able to raise and sustain the force required to meet the challenges of the future operating environment.

7-6 The Tempo of Army Service

High operational and personnel tempos characterized service in the Army over the last decade. Beginning with the 2004 *Army Posture Statement*, Senior Army leaders recognized the strain this tempo placed on the Army, Soldiers, and their families. Personnel management initiatives to support the future Modular force promise to provide some stability, but the Army must anticipate that Soldiers and families will continue to experience frequent deployments. Similarly, Soldiers in generating force assignments currently work long hours in support of the modular force, and in some cases, join the operating forces during the conduct of operations. Such factors will continue to stress to the force. The Army will experience this stress in different ways—in individual Soldiers and families as well as stress on the Army institution at large. Beyond operational stressors, there will be a continued need for professional education and training—a critical requirement in the future operating environment. If collectively, as mentioned above in the discussion of the Army family, these demands exceed the Soldier's ability to cope and meet his obligations to family, the Army may lose the Soldier's dedicated service even though he may believe it to be a rewarding life that is worthy of the Soldier's service.

Therefore, in addition to developing policies and capabilities that address the elements of the human dimension, it is also important to address the issue of force size to ensure that the Army has sufficient numbers of Soldiers and resources to meet the demands of the OPTEMPO. Developing policies and capabilities across DOTMLPF alone is insufficient if the force is too small to adequately meet strategic requirements, staff both the operating and generating forces, provide the opportunity for quality training and education, and have adequate reset time between deployments and quality of life for both Soldiers and families. Examining these dynamic and interdependent factors determines how they should influence the size of and retention in the future force.

7-7. Conclusion

The complex operating environment of the twenty-first century demands innovative approaches to personnel management. Many of the suggestions in this chapter echo elsewhere in the *Human Dimension* study and other concepts. New personnel management systems must balance the needs of the Army with the needs of the individual and families. The Army's policies and systems to promote, assign, and educate leaders are keys to the success of operational units and the effectiveness of the Army as an institution. The Army will continue to consist of dedicated men and women in the active and reserve Army serving as Soldiers, government civilians, and contractors. Taking care of people and insuring mission accomplishment includes providing them with the best and most modern equipment and facilities. The next chapter presents a look at how S&T contributes to this aspect of the human dimension.

Vignette

Lieutenant Colonel Rick Stacy finished the pre-command course and was really excited about his assignment to the 4th Infantry Division. He'd served with the division as a lieutenant in Iraq. Getting to command one of the new FSV combined arms battalions was a dream come true. Stacy had had an interesting career path—unconventional most would say. He was in the year group that first went through the 360-degree rating and local selection for promotion to Major. Being an instructor at West Point at that time didn't bode well for him and his contemporaries, or so he thought. The officers on the staff and faculty at the academy were out of the mainstream. Worse still their 360-degree cohort included mostly fellow instructors all of whom were as competitive as the dickens and most of whom were ensconced in the academic department stovepipes. Few really knew other department instructors. Stacy thought the 360-degree idea had its place, but at the U.S. Military Academy were they going to let the cadets "rate" their instructors?

Stacy and all but one of the eligible captains at the Academy that year made the Major's list. They attributed this to their prior assignments, but failed to appreciate how the personnel system had really changed and how assignments like teaching in ROTC or the academies really mattered.

Years later as he looked back at Intermediate Leaders Education at Fort Leavenworth and his subsequent assignment as an industrial intern, he really wondered what the West Point experience did to his career. Here he was a junior major nearly five years away from troops and they were sending him to Detroit?

Actually, he'd enjoyed the time with General Motors. It was only six months, after all, and he got the S3 operations officer slot in a Fort Riley combined arms battalion. He also got to be his battalion's executive officer and did two turns at the National Training Center, one as the S3,

and one as the executive officer. It must have made some difference or he wouldn't be getting a battalion.

What Stacy didn't fully appreciate was that he was one of a select group of officers whose officer record briefs were flagged electronically with a code for command. He'd been briefed on how it worked and assured that it was not the only discriminator for battalion command. Heck, he'd even nominated cadets, lieutenants, captains, and majors using the electronic 360-degree rating form. The instructions were simple. If you thought an individual exhibited leadership traits and would be a command candidate you were authorized to click that box. It wasn't visible to the individual, and if you clicked it on everyone the system rejected your nominations. In place for about five years, the Army was still assessing the effectiveness of grooming certain individuals for command positions.

Stacy knew the system had been used for NCOs since 2011 with some success. His own first sergeants and the command sergeants major he'd known were products of this system. They'd been very good too. Other senior enlisted Soldiers serving in staff billets were quite good at what they did, but may not have been good company first sergeants. Stacy fully bought the philosophy that one size doesn't fit all.

Six months later…

"Good afternoon Warriors!" Lieutenant Colonel Stacy said addressing his primary staff and company commanders.

"Hooah!" Came the expected reply. Nothing wrong with a little enthusiasm, he thought.

"Let me begin by thanking all of you for the outstanding rotation at Irwin. I am so proud of how we've welded into a team." The officers and senior NCOs clapped briefly, anxious to hear their battalion commander's word on the Real Deal alert.

"Okay, I know we've barely returned from the National Training Center and none of us have had time to even see our families. That's tough on all of us, but that's our world, and I know you know it all too well.

"Here's what I know. Operational Plan 2020, the one we just used, is now Operational Order April 2020. We are wheels up in twelve hours with the advanced element. Division is now TF Green. We'll be flying to Darwin with an emergency entry command post from division. Special operations forces are already in the Sumatra Caliphate. Our mission is the same as we just executed at the National Training Center: 'Conduct joint forcible entry operations through AO Aerie to defeat Anderian forces in and around Pekanbaru, reinforce the airborne BCT on Pekanbaru International, and support the capture of Anderian leadership.'

"We have about 19 hours of flight time to do some en route mission planning and rehearsal. Get the word to the troops. I've asked brigade if there's any chance of a family send off. Right now this whole operation is totally under wraps. You know the drill. Nothing that could alert the media of our deployment. I'm just as sorry about that as all of you.

"Let's just suck it up one more time. Go take care of your units and get back on the sleep plan we followed at Irwin. Any questions?"

Colonel Stacy and his combined arms battalion are getting no break after a month at the National Training Center, a rotation unlike the routines they had experienced before. In this case the vignette is couched inside a larger story in which Stacy's unit, equipped with the latest FSV have spent a month literally training for mounted vertical maneuver, and rehearsing for an operation that was unfolding on the other end of the hemisphere. This extreme example of rushing to employ an untested combat capability in an emergency is not unprecedented. Indeed, the First Cavalry Division's insertion into combat in 1965 so well related in the book *We Were Soldiers Once and Young* was the culmination of years of study and experimentation with the concept of airmobile operations. Just as this effort taxed the leaders of Colonel Hal Moore's beleaguered battalion in the jungles of Vietnam, the upcoming Battle of Pekanbaru will tax our fictional battalion's leadership. What is significantly different in this case are years of molding the force and the emerging leaders of that future Modular Force so that when Stacy's battalion enters combat, it will be on his terms and not a slugfest with a determined alerted enemy. Taking nothing away from the extraordinary performance of the First Cavalry in Vietnam, this chapter highlights that the Army's preparedness, training, and ability to deal with the unknown on a higher level than in the past. It all starts with the selection and grooming of leaders,

S&T produces more than just hardware. The next chapter explores many of the potential contributions that S&T can contribute to enhance Soldier performance.

Required Capabilities

The future Modular Force requires Soldiers who embrace the Army ethic, are technically competent, tactically proficient, and can rapidly adapt to the complex OE of the future. Due to the changes in the OE, Soldiers serving in the future Modular Force will experience new opportunities for promotion, career development, and methods of serving the Army. The key element of these changes is the adaptations of the Army's personnel system from the management of assignments to the management of careers. To achieve this, the future Modular Force must have the capabilities listed below.

- A human capital management system that provides for the development of Soldiers through programmed assignments, military education, and civilian education.
- The Army needs to develop a continuum of service policy that enables Soldiers to fluidly transition across components with minimal degradation of skills and opportunities.
- A promotion system that incorporates decentralized inputs from local leaders and peers but retains centralized standards for evaluation and selection.
- A career oriented compensation program that both facilitates and encourages increased retention and career length.
- An accession system that ensures the Army has sufficient strength while simultaneously controlling attrition during initial Service obligation.

- Leadership doctrine for developing leaders and who understand how to assist in the development of strong, healthy, resilient families.
- Mental health doctrine for mental health care providers and counselors who can apply preventative treatment measures for Soldiers and families across the Soldier life cycle and treat mental health problems in Soldiers and families.
- Generating, installation and future Modular Force commanders must have the capability to integrate into institutional, installation, and pre-deployment training programs respectively, training that promotes strong unit, Soldier, and family relationships and address Soldier and family concerns.
- Future training capabilities include training for:
    - Family readiness groups.
    - Unit combat and operational stress teams.
    - Installation staffs and family support agencies.
    - Civilian government and community support agencies
- The capability to deliver progressive and sequential content on the skills, knowledge, and abilities required to promote strong unit, Soldier, and family relationships and address Soldier and family concerns.
- The Army must identify, obtain, and develop healthcare; family and community support; education; child and youth services; morale, welfare, and recreation; spouse employment; family relocation; deployment cycle support; and career (including wounded warrior) transition professionals to assist unit leaders promote strong unit, Soldier, and family relationships and address Soldier and family concerns.
- The Army needs adequate funding for paid family readiness group deployment support assistants down to company level

Questions for Further Examination

- How would a concept of expanded promotion zones and its effect on career timelines impact on the Army's operational effectiveness?
- How would a continuum of service system support individual careers and the Army as an institution? What impact will targeted monetary incentives for retention have on manning?
- How does the assignment system support the brigade-based Army in near persistent conflict?
- How much influence should local commanders' have over developmental assignments and should this be a decentralized or centralized process?
- What systems are required to provide more influence of local commanders on the promotion process?
- What are the personnel and human capital management issues associated with giving credit for similar service in the civilian sector, which would allow former Soldiers and officers to re-enter the service at a grade commiserate with their experience.
- What programs are effective at enhancing resilient families that are adaptable, can tolerate ambiguity and uncertainty, and are capable of functioning effectively without the Soldier's presence?
- What family support programs are truly effective at enhancing quality of life, improving family satisfactions with military life, and retaining Soldiers and families in the Army?

- What OPTEMPO level and deployment frequency will nullify family support efforts to build strong Army families and retain Soldiers and families in the Army?
- What is the impact of continued deployments on child development in dual military families where both military members deploy?
- Should the Army have documented organizations performing rear detachment functions? At what level?
- How should the Army interact with the Department of Veteran's Affairs to assure continued quality service to veterans?
- What are the dimensions of how active Army and reserve component Soldiers are drawn from American society and then return to it?

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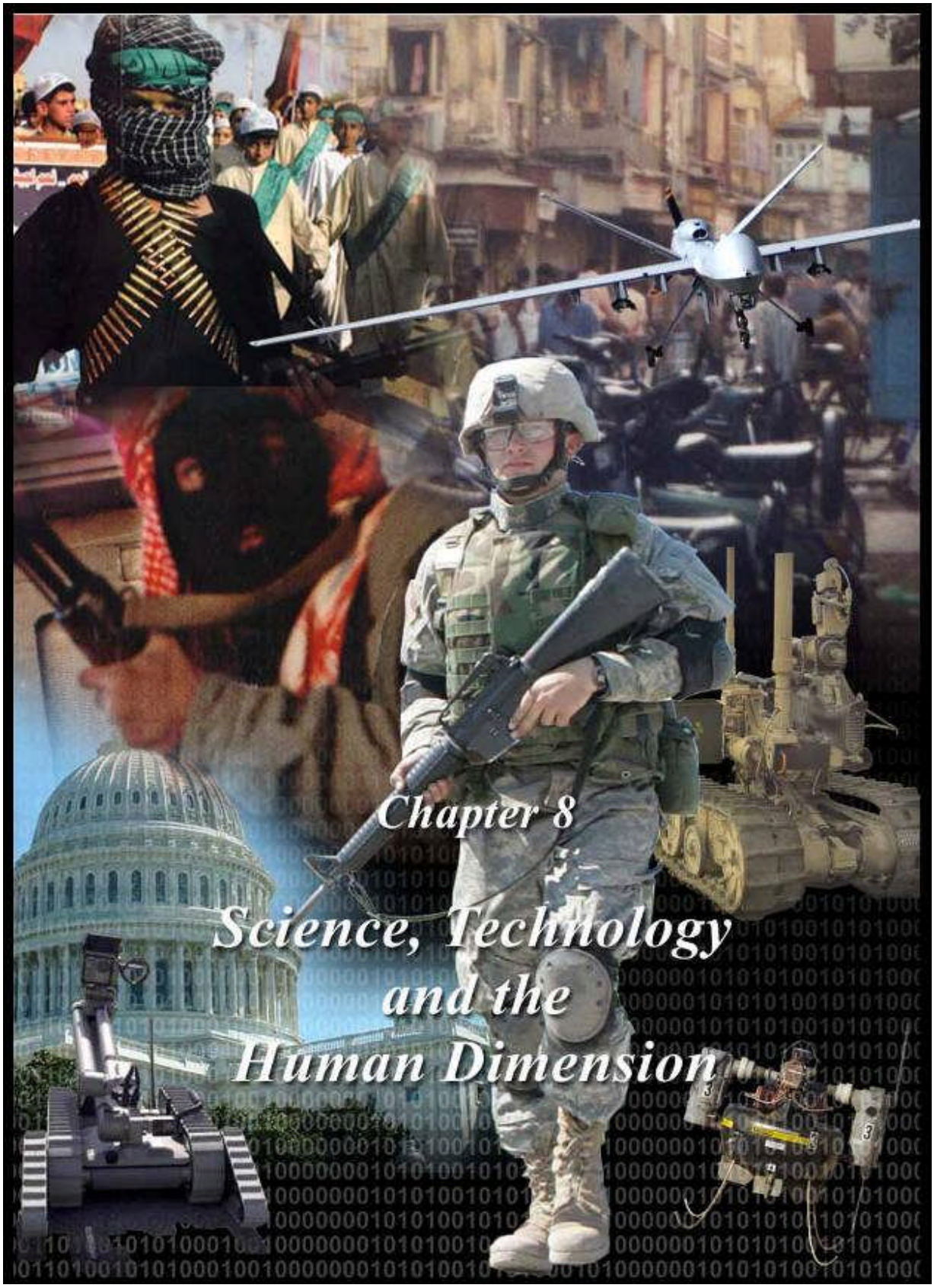


Chapter 8

Science, Technology and the Human Dimension

Science can only ascertain what is, but not what should be, and outside of its domain value judgments of all kinds remain necessary.

Albert Einstein (1879-1955)
U. S. physicist, born in Germany

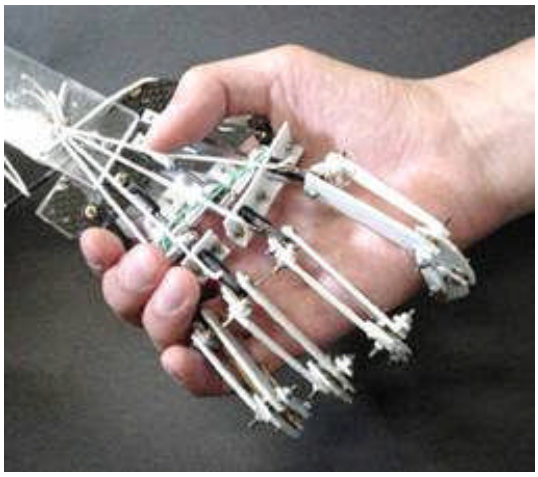
Chapter 8
Science, Technology, and the Human Dimension

8-1. Introduction

S&T plays an important role within the human dimension in the future. Science will continue to investigate the physical, cognitive and, to some extent, the moral components of the human dimension. As the Army applies science toward developing advanced technologies, it will be able to more accurately target its recruiting effort, more effectively train and educate Soldiers, enhance physical and cognitive performance and augment human capabilities with advanced technology tools. S&T developments will help the Soldier to not only succeed in combat, but also to cope with the stress that combat produces, recover from the physical and mental effects of a hostile OE, and facilitate the Soldier's reintegration into American society.

Human needs and requirements define the goals and objectives of Army S&T efforts. Taking advantage of unexpected or breakthrough technologies as they emerge provides the Army with the best possible means to accomplish its mission. While human imagination is unlimited, physical capabilities and the S&T available to augment or enhance those capabilities present challenges to achieving human dreams. Many factors drive the S&T effort and S&T advancements impact on the characteristics and capabilities of the human dimension. For example, joint and Army concepts envision new ways for the military to operate in future warfare that may exceed current technological capabilities. People have always taken advantage of S&T advancements to enhance warfighting capabilities.

> Demands of modern warfare-While modern warfare has not hesitated to impress almost every known science into its service for the purpose of overcoming man, the trained man has up to the present time demonstrated his ability to hold his own against the most terrible odds successfully; and in the end it will be discovered that it is the man, the carefully trained and conditioned man, who alone can make victory possible.
>
> - War Department Special Regulation, 23. Field Physical Training of the Soldier. War Department, May 10, 1917



The continual evolution of the OE influences both S&T and the human dimension. Though predicting specific S&T capabilities ten to twenty years in the future is difficult, it is safe to say that capabilities developed to improve the human condition will find military applications and vice versa. This chapter discusses emerging S&T trends, the integration of S&T into the human dimension at both the individual and societal levels, and the impact of this integration on the human dimension.

Army leaders must be conversant with new technologies and comfortable in their integration into all aspects of the Army mission, training and

operations, support and services, and personnel and equipment. Keeping pace with S&T developments is a professional responsibility and an institutional imperative.

Technological savvy is a desirable attribute for future recruiting and a necessary skill when training, developing, and evaluating the leadership of the future Modular Force. The Army must be willing and able to embrace emerging technologies to provide a tactical or operational edge, and accept the risk that some technologies may not work as expected. Future recruits will have grown up in a different world from their Army leadership. They will be comfortable with technology, adapt quickly, and be eager to try the latest innovations. Adapting to the skills and motivations of the Nation's youth while retaining the core values that define the American Soldier and the U.S. Army will pay great dividends.

8-2. Science and Technology (S&T) Trends

Today's emerging technologies fall roughly into four major categories: biological systems, machines and computers, information, knowledge, communications, and energy. Integration of multidisciplinary technologies (smart materials, agile manufacturing, nanotechnology, biotechnology) across all dimensions will offer a synergistic advancement of technological capabilities. How these new capabilities influence the human dimension of the future Modular Force is of vital interest for the Army to explore.

Biological Systems

Biological systems and processes used in many areas inspire sensors to affect manufacturing, self-modify diseases, as well as genetically modify crops, people, and animals. By 2015, the biotechnology revolution will be in full swing with major achievements in combating disease, increasing food production, reducing pollution, and enhancing the quality of life.[173] Examples of future biological enhancements include bioengineering of small intestine sub mucosa (pig intestines) to heal wounds in humans and the use of robotic devices to retrain muscles. Biotech will allow improved organ and implant efficiency of eyes, ears, and internal organs that will allow quality and duration of life improvements. However, the same applications that mitigate disease, malnutrition, pollution, and crime can be readily adapted to create potent, new weapons.

Machines and Computers

Trends in machines and computers included robotic miniaturization, quantum computing, human-machine interfaces, and new materials. These include new breakthroughs in sensors, computer processing, and miniaturization on the molecular level. Nanotechnology will lead to

miniaturization and micro-production of cameras, sensors, and communications devices and networks. Nanotechnology will enable development of "swarming" tactics—the use of large numbers of tiny vehicles either autonomously (each acting individually) or networked (the swarm acting as a single entity to conduct attacks to overwhelm defenses). When properly directed, swarms can conduct continuous, autonomous operations.

Researchers believe quantum computing has the potential to provide ten to the 15th power (Teraflop) operations per second.[174] Advances in computing will lead to advances in robotics, with some robots nearly as smart as humans in some tasks, and faster and smarter in others, though unable to match the human's ability to adapt and innovate to new circumstances. As technology advances, interactions between man and processing devices will increase. The human machine interface may be the key to yielding quicker recognition and response times for any number of processes that still require a human input. Limb and organ prostheses developed in the human machine interface domain may help to overcome many physical disabilities. New materials projected for the future will go far beyond the limits of current metallurgy and ceramics. New structural and functional materials will be computer-designed and or optimized materials ranging from metal alloys, semiconductors, and superconductors, to proteins. These materials will be relatively inexpensive, lightweight, and super-hardened.

In the next 10-20 years, breakthroughs in new structural materials and propulsion physics materials will contribute to the concept of cheap access to space. Micro-payloads will alter the space access matrix from dollars per pound to value per pound, enabling less expensive access to space. Using new materials, engineers will explore alternatives for reliable and affordable access to earth orbit such as the expendable launch vehicle.[175] Non-state actors may take advantage of cheap access to space to wage anti-satellite warfare.

Information, Knowledge, and Communications

The information, knowledge, and communications revolution will continue to accelerate. Moore's Law (whereby, the number of transistors on a chip doubles about every two years), or variations thereof, will hold true for another 20 years.[176] Future information, knowledge, and communications systems will greatly speed data flow and contribute to global connectivity and interconnectedness. As a result, there will be a major shift away from nation-states controlling or protecting information. Networks will expand exponentially, making it easier for groups and individuals to share information rapidly. There will be tele-everything: tele-conferencing, -shopping, -working, -schooling, and -playing. Other materials and methods will surpass the limits of silicon-based processing. Bio-enabled computing power can facilitate mind-mapping techniques to enhance significantly the efficiency and effectiveness of computer-assisted decisionmaking. Pervasive information, combined with lower costs for many advanced technologies, will result in individuals and small groups having the ability to become super-empowered. Potential adversaries will employ niche technology—weapons of mass destruction, for example—capable of defeating key systems and providing inexpensive countermeasures to costly systems.

Energy

Alternative energy sources will become more prevalent. Hydrogen, various forms of atomic energy, and hybrid systems, will reduce reliance on fossil fuels for powering our society, thus reducing oil dependence. Derivatives of alternate energy sources may replace or enhance current battery technology. A National Aeronautics and Space Administration study of cosmic energy suggests that humans only understand four percent of the matter in the universe, so there remains a potential to tap the unknown.[177] New types of energy, such as positronic energy conversion, zero point energy, and high energy density materials, along with currently available direct energy, have the potential to meet some of our energy needs. As an example of new S&T research, positronic energy conversion and zero point energy theoretically could produce energy without a radiation byproduct.[178]

As is the case in many other disciplines, the integration of two or more of these emerging technologies often creates a synergy where the whole is greater than the sum of its parts. For example, a nano machine may serve as a carrier for a chemical or pharmaceutical agent. A computer implant can help to restore a biological/physical function. These examples also serve to illustrate the growing trend toward developing dual-use technologies. That nano machine used as a medical device to deliver a drug to a precise location in the human body can be easily adapted to deliver a lethal agent.

While man has consistently demonstrated a propensity to turn S&T advancements into instruments of war, it is of some comfort that over the long term, advancements often have an overall positive impact on the human condition. Neutral in and of themselves, this positive impact is a result of their ultimately responsible use once integrated into the human dimension.

8-3. Integration of S&T

Technological efforts to improve human performance come from all areas of S&T development and are often combinations of two or more disciplines. A sample of the Defense Advanced Research Projects Agency's projects include efforts to provide an individual more energy, require less sleep, allow smarter and faster analysis of information, build stronger exoskeletons, augment cognition, improve digestion, and produce tougher bodies.[179] Taken together, these projects aim to enable Soldiers to perform at peak efficiency. In the near future, such internal enhancements will rely on mechanical augmentation, drugs, and psychological behavior modifications. In the longer term, gene manipulation may strive to improve human performance while nanotech implants dispense advanced drugs to increase efficiency of the

physical processes. A challenge for any program or project seeking to enhance human performance will be to carefully investigate and define the trade-offs. The human experience provides few if any examples of technologies that confer benefits without an attendant risk.

The U.S. Army Research Laboratory's (ARL) Human Research and Engineering Directorate is an Army organization for research and development in the human dimension. The Human Research and Engineering Directorate also conducts a broad-based program of scientific research and technology on optimizing Soldier performance and Soldier-machine interactions to maximize battlefield effectiveness. One ARL program is developing human factors technologies and design principles that protect and extend the Soldier's physical, perceptual, cognitive, and psychological performance under hostile and highly stressed conditions. This will enable the individual Soldier, the weapon system's crew, and the battle staff to comprehend and manage the vast quantities of data expected to flow across the digitized battlefield in both automated and degraded support modes. This will in turn effectively integrate the weapon's operator, maintainer, and trainer in evolving crew station, equipment, and unit designs.

The U.S. Army's Manpower and Personnel Integration Program is the Army's comprehensive program for improving the effectiveness of system performance. The program insures that the Army will factor Soldier abilities, aptitudes, and physical characteristics into the design of the equipment. Furthermore, the Manpower and Personnel Integration Program seeks to insure that systems, once fielded, will be able to perform their assigned training and operational missions, and be reliable, maintainable, and supportable under combat conditions.

The Military Operational Medicine Research Program provides biomedical solutions that protect Soldiers and enhance performance in operational and training environments that include multiple stressors (see fig 8-1). Military Operational Medicine Research Program makes an effort to identify those factors internal and external to the individual Soldier, that act to degrade individual performance.

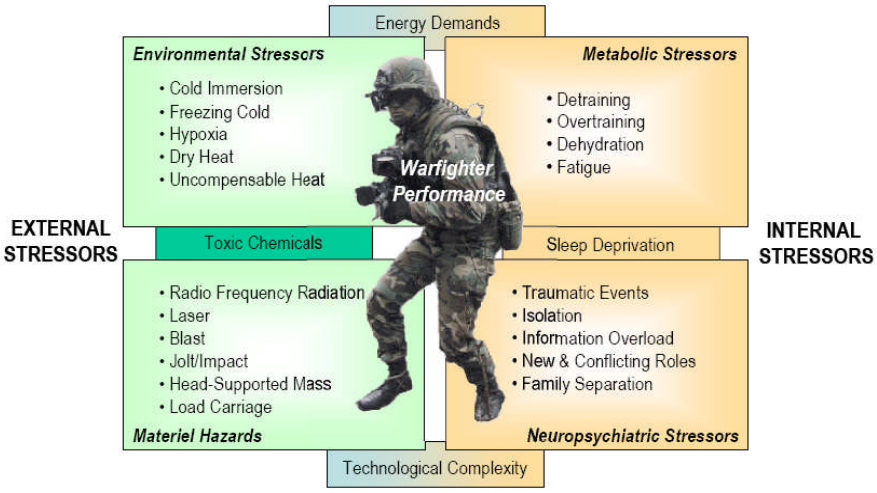


Figure 8-1. Military Operational Medicine Research Program

The program's solution strategies include bioenergetics to deal with environmental extremes, injury biodynamics-focused behaviors and equipment to reduce risk of injury, neuropsychology to address fatigue and psychiatric injuries, psychophysics to examine visual and auditory performance, and force health protection limits environmental health risks.[180] Also among their considerations is the ability of the human mind and body to deal with the scope and complexity of technology. Currently, the S&T available limits human endeavor. In the future, the reverse may be the norm, in that, the ability of the human to accept and use leading edge technologies becomes limiting. The integration of S&T with the individual enhances that ability and pushes the limits upward and outward. As the S&T trends take shape, the tools available to ARL, Defense Advanced Research Projects Agency, and other research and development entities will greatly expand the potential solutions. By 2030, the ethical and moral questions of human enhancement and behavior control may be more of a limitation on the process than the scientific and technological capabilities.

The other aspect of integration of S&T into the human dimension concerns those technologies that provide new or augment existing external capabilities. As is the case with the internal enhancements discussed above, these advanced technology capabilities are in and of themselves neutral.

Advanced computer technologies will provide significant assistance to future human decisionmaking. These include providing **i**mproved training to the human decisionmakers, **i**mproved forms of communication and coordination, external memory or perceptual aids, enhanced access to relevant data and information, and active decision support systems where the computer is an active participant in the problem solving and decisionmaking process.

While the speed and capacity of advanced computing decision support systems will increase geometrically, a human interface will remain necessary. Complete automation is implausible as a solution when the underlying tasks and task environments are sufficiently complex (for example, total reliance on the programming to anticipate and deal adequately with all possible scenarios through their design). Furthermore, even for designs touted as completely automated, this is rarely the case. People still interact with the software either to overcome or recover from its limitations in unanticipated situations, or to perform maintenance and upgrades. Models of human behavior and human knowledge embedded inside computer decision support systems will continue to provide valuable assistance to humans but still not be able to match the completeness and complexity of the human brain.[181]

Historically, many S&T advancements have proven ultimately to improve the human condition. Chemical warfare in World War I led to the pest control agents and fertilizers that help grow crops to feed the world. The atom bomb of World War II engendered a whole array of nuclear energy and nuclear medicine technologies. S&T trends derive from many sources in addition to weapons programs. Interaction with the OE strongly influences how S&T interacts with the human dimension.

Trends in the OE indicate a future with increasing competition for scarce resources, clashing ideologies, and a growing disparity between the wealthy and the poor. Such an environment may foster a tendency to weaponize advanced technologies and default to the military application of

dual use technologies at the expense of benefits to the human race. Rapid advances and convergence of biotechnology, nanotechnology, and the materials sciences can be of great benefit to the human dimension, but can also add to the capabilities of adversaries to engage in biological warfare or bioterrorism.

The interrelationship between the internal and external S&T advancements as they affect the human dimension and the human dimension effects on that integration bears examination. First, internal and external technologies limit each other. Advanced technologies will outpace the ability of humans to employ their full potential efficiently and effectively. More data arriving more quickly is not advancement if the human receptor cannot process that data into understanding and knowledge. This drives research and development into internal enhancements that will improve the human ability to process the data and act on the knowledge he derives.

As the capability of the individual approaches the potential of the external technologies, these technologies will in turn stretch the envelope. This interaction results in an iterative process whereby all facets of S&T continually advance while their application within the human dimension must keep pace.

8-4. Conclusion

S&T has always played an important part in warfare. War frequently stimulated new developments in both weaponry and medicine that often found their way into peaceful uses. This chapter outlined future trends in scientific and technological developments that the Army must be able to take advantage of and integrate as they emerge. As new technologies become available, the Army must explore their potential use. The Army must reconcile the requirements and potential of the physical and cognitive components of the human dimension with the moral component. While S&T will determine what is possible, it is the men and women of the Army who must determine what is acceptable. This generates a debate on ethical and moral issues that requires a cognitive investment on a par with the efforts devoted to scientific exploration. Future adversaries will do all they can to capitalize on technology to overcome military disadvantages. The Army must balance this volatile race for S&T with all other components of the human dimension.

Preceding chapters include a number of recommended imperatives, things the Army must do to adjust to the changing future operating environment. Combining human dimension imperatives with S&T solutions is a leadership challenge. The next chapter shows leadership as an integrating function weaving throughout this entire concept.

Vignette

Captain Joe Tignor, Commander of B Company, 1-5 Infantry, 1st BCT, 4th Infantry Division, at Fort Carson, Colorado, had just returned to Carson from a rotation at the National Training Center in Fort Irwin, California. His battalion of the new FSVs in all their variations had

undergone a grueling four week rotation in the hottest time of the year. The OPFOR used some of the most unconventional and unpredictable means to stymie Joe's battalion's efforts to execute a forcible entry operation. Fortunately, brigade chose Joe's battalion to execute mounted vertical maneuver to insert the fighting companies in multiple landing areas where the enemy was not located.

Flying in the huge Condors, the Army's newest tilt rotor aircraft, had been an incredible experience for B Company. Each crew remained with their vehicle tied in digitally with the rest of the company and battalion and able to change plans rapidly using the joint en route mission planning and rehearsal system. In spite of the OPFOR's clever use of cell phones, global positioning system jamming, and computer network attacks, Joe's entire company made it in to Objective Area Aerie in just over two hours undetected and unopposed. Joe appreciated the role the unmanned aerial systems that scanned the proposed landing area played in their success. He marveled at the fact that there had not been a single voice transmission during the entire insertion. As he oversaw his company unloading their rucks and duffles in the motorpool his cell rang. It was Lieutenant Colonel Rick Stacy, his battalion commander and the screen flashed secure!

"Joe, this is Secret, are you clear?"

"Yes sir."

"Saddle your company up now, 8 days load. This is the real deal, REDCON 1. We're wheels up in 10 hours. I'll fill you in on the details when you fire up your system. Alert the company first, and then check in."

REDCON 1? Joe tingled. They were going into combat! Thank God they'd used pre-stocked equipment at the training center. They would need to draw their basic load and some other provisions, but everything else was already loaded.

"Frank!" he shouted to First Lieutenant Hubbard, his XO. "REDCON 1! Wheels up in 10 hours, make that 2300, 9 plus hours. Battle drill 15, Frank. Get the leaders on their systems now. Standard combat load. I know we just got back—communication blackout other than LandWarNet[182]

B Company swung into instant action as Soldiers and NCOs received the word. Mama was on everyone's minds, but this was the real deal. This whole division hadn't been in combat since 2009. Everyone knew there was something going on down in Sumatra—one of their designated areas of interest. The whole training rotation was modeled on that operation. It looked like old Ibn Ander must have acted up. Maybe they'd get a chance to say goodbye to their families and girlfriends before they flew.

No longer the butter bar, newly promoted First Lieutenant Brian Wilson thought he was a seasoned platoon leader, but he'd eaten enough humble pie in his short year as a second lieutenant to know he had lots to learn. Tignor's alert gave him an involuntary thrill, a sense of

excitement akin to the butterflies he'd felt before hitting the ice with the Notre Dame hockey team.

He'd drilled his platoon about as hard as he could in preparing for the dreaded table 8 and then Irwin. They'd done well, especially Deans' crew, the guy he'd joined the division with only 5 months earlier. He had hoped to spend some more time with Jillian, but it could wait. He wasn't sure he was ready to propose, and if they were going into a shooting war he might not come back. Maybe it was better that they had cooled it. Jillian was an Army brat. She knew the score, but she wasn't real pleased with him heading off to the training center. She'd texted him nearly every day, but they had talked only twice in the month he'd been gone.

Sergeant Billy Deans was mad as a hatter when he got the word. His crew was looking forward to a barbeque once they got off work. His wife, Andie, had it all prepared. Now he couldn't even call her to turn it off! He thought about his guys. Most of them were married like he was. They would be okay. He wasn't so sure about the new guy. He'd done fine on the rotation, but he was sure green.

"Man," he thought, "The real deal and us just back from Irwin. This really sucks!" He climbed into the hatch of his FSV-G and fired up the system. Colonel Stacy and all the company commanders were signed in along with reps from every platoon. Deans logged in as a monitor-only participant. Soon his screen filled with text and graphics as the outline of the plan appeared. The map was central Sumatra instead of Fort Irwin, but the graphics were nearly the same, including AO Aerie. So they were actually going to execute the plan! He wondered how they were going to get close enough to do the mounted vertical maneuver forcible entry operation. Soon he saw the plan appear. Their vehicles and equipment were going by C17 to Darwin, Australia. The crews would join them via commercial air. The Condors were self-deploying with skeletal crews from the battalion. They'd all marry up in Darwin with parts of the rest of the brigade and the division now designated TF Green. A good deal of the TF was pre-positioned in the region both afloat and ashore. This was going to be the biggest show since the capture of Baghdad. It still sucked, but Deans was fired up.

When people thought about 2007 in 1987 few could imagine nearly everyone having a cell phone and ubiquitous Internet with such unknown words as *Google* and *Facenet*, or any number of other commonly accepted tools that S&T has put in the Army's hands in twenty years. This fictional account of a unit gearing up to go into combat is a glimpse into a future perhaps no more than 10 years hence. S&T matters and will make a major difference in how the military operates in the future. Accepting that, the Army cannot afford not to adapt and adopt new technology as it emerges. At the same time, the Army must never forget Patton's dictate that wars may be fought with machines but they are won by men and women.

Required Capabilities

Listed below are S&T capabilities the Army needs to successfully identify, influence, and integrate future technologies with the potential to affect the human dimension.

- Maintain an in-house research and development capability to focus on Army-specific S&T requirements.
- Maintain a liaison with other DOD, Service, and S&T development agencies and national laboratories to identify new and emerging S&T applications to utilize in Army programs to address identified requirements.
- Maintain relationships with educational institutions and industry to cooperate in the development and integration of dual-use technologies that benefit both partners.
- Maintain watch over national and international S&T trends and developments. The Army must be able to detect, identify, evaluate, and, as appropriate, apply new technologies developed in educational institutions, by industry, and in military programs, domestically and abroad. Pay particular attention to S&T developments with the potential of addressing known requirements.
- The Army's procurement system must have the agility to acquire new technologies that satisfy existing requirements and adapt ongoing programs to integrate newly discovered or acquired technological capabilities.
- The Army must maintain a capability to envision future S&T trends and anticipate technological breakthroughs that significantly affect the global or regional balance of power.
- The Army must develop a capability to model the impact of emerging technologies on global military, economic, and social systems to anticipate developments that can either aggravate or mitigate conditions that may cause future conflict.
- The Army must maintain the capability to monitor an adversary's S&T programs and their focus. Then we must develop an ability to anticipate the impact of S&T developments on an adversary's human dimension. While the S&T itself may be identical or similar, other factors will vary from ours and will affect the ability and manner in which the adversary integrates S&T into the human dimension.

Questions for Further Exploration

The ethical and moral issues associated with the integration and use of advanced technologies will not disappear in the OE of 2015-2024. The Army must integrate today's S&T initiatives while directing and focusing research and development to find tomorrow's opportunities.

- How will S&T developments affect the recruiting effort? Will future S&T discoveries require new qualifications or adjusted standards for new recruits?
- Can advancements in S&T help us more accurately predict the results of the trends and define the potential future OE?
- Will advanced computing technologies enable the Army to create models and simulations that will show us how to reinforce positive aspects of these trends while reducing the impact of negative effects?

- What is the proper balance between leveraging future technologies to enhance the human dimension and preserving the unique attributes of the human character? What should we do versus what can we do? Does every advance in technology result in a new weapon?
- Would the availability of cheap and abundant energy significantly reduce those factors that lead to conflict?
- What new demands will advances in S&T place on the Army's training base? How do S&T developments improve individual, collective, and unit training?
- How will emerging research in personnel and organizational psychology, such as, psychometrics, enhance our understanding of the human dimension?
- How will new and emerging technologies affect the laws of land warfare and rules of engagement?

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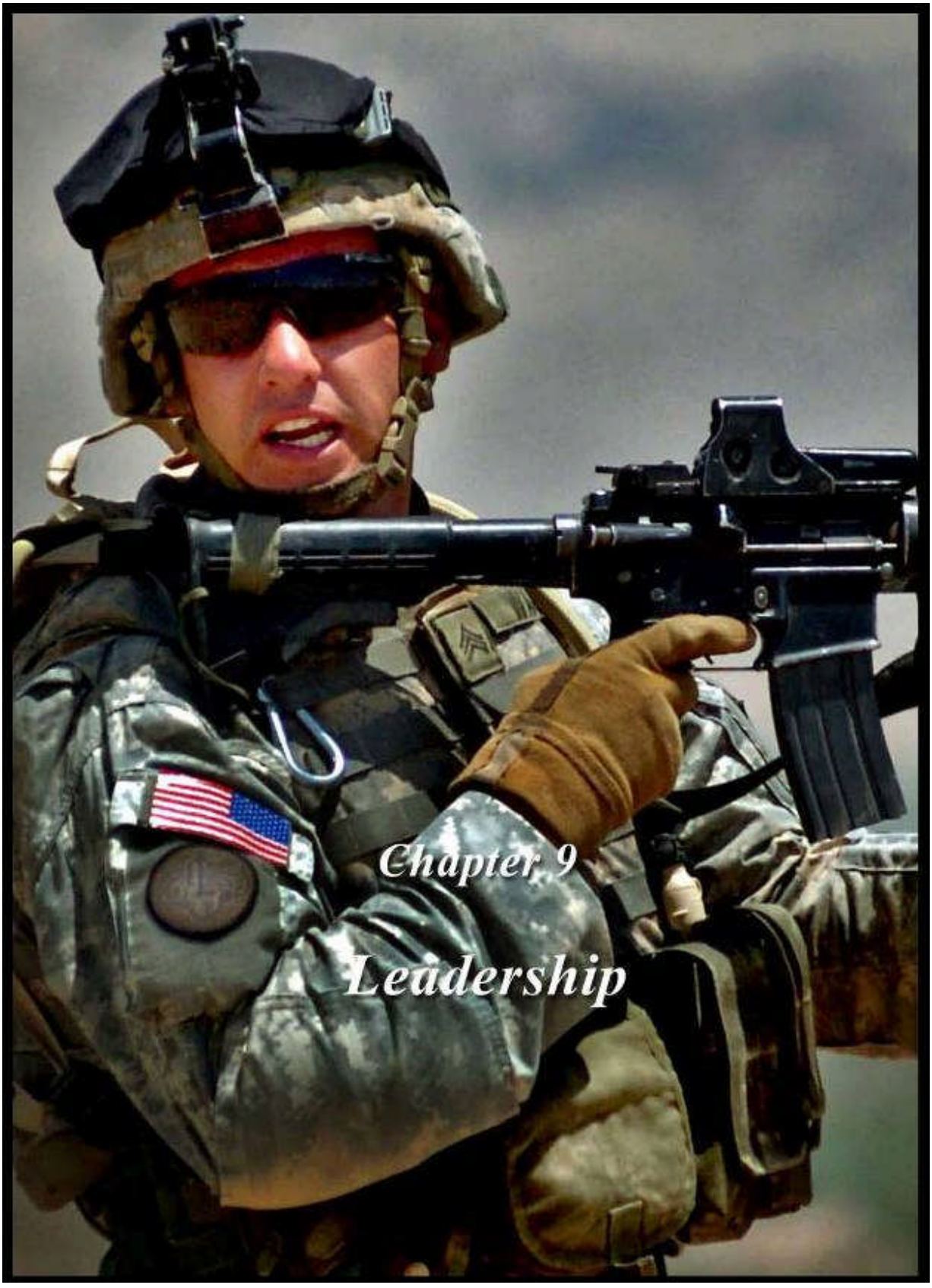
Chapter 9
Leadership

Soldiers coming into the Army expect their leadership to provide training and direction, provide discipline, administer justice fairly and equitably, set the moral and ethical example, give counseling and career guidance, and to be a font of knowledge and experience from which to draw from. If we, as the leaders in the Army, don't do this, we are failing the Soldier and the Army.

SGM Vallair

Chapter 9
Leadership

9-1. Introduction

Leadership weaves throughout this concept both explicitly and implicitly. FM 6-22 describes leadership in detail and from many perspectives. Rather than restate this information, this chapter assumes that the essence of leadership is immutable, and that the characteristics the Army wishes to develop in leaders at all levels will not change significantly. The future will change and leadership challenges will change. This chapter highlights considerations introduced earlier in the concept that will help the Army to better prepare leaders for tomorrow.

9-2. Changes That Challenge Leadership

Chapter 2 describes a complex future of persistent conflict. This creates a quantitative increase in the demands on future leaders. One aspect of complexity is the flow of information. Whereas the field commanders of the nineteenth century could often see the entire battlefield, today individual Soldiers from the lowest to the highest echelon can have visibility of entire theaters of operation. Moreover, even with increased visibility, future concepts call for distributed, noncontiguous operations over expanded distances creating situations of increased uncertainty for units out of contact with each other. This potential will only increase with consequences that can be both good and bad from a leadership perspective. The good is obvious. Knowing more and sharing a common operating picture reduces uncertainty, increases situational awareness and understanding, and enables mission command and self-synchronization. Inundation by too much information, on the other hand, can cause confusion, uncertainty, and induce self-doubt. Developing means to manage knowledge and get the right information to the right people has both technical and human solutions. Leaders must be aware that information systems cannot fully represent the ground truth and that digital displays are no substitute for leaders on the ground. Successful leaders somehow know what is critical to pay attention to and what to leave alone. This skill or talent rises from experience more than any other source, suggesting that one of the critical issues in leader development in the future will be creating opportunities for leaders to cope with complex information and high pressure rapid decisionmaking in order to develop an experiential basis for dealing with increasingly complex challenges.

Joint and Army concepts state that warriors of the future will need to be masters of transition. They must be able to switch from major combat to humanitarian assistance, and everything in between, repeatedly, and instantaneously. COIN operations, in particular, require flexibility and adaptability. Soldiers will face life and death decisions with little time to reflect. Their challenge elicits a visceral response, reactive, and groomed by training and unit battle drills not unlike the police firing range where the officer moves through a series of potential targets and must engage the criminals while sparing the innocents. Leaders face similar challenges though the personal face-to-face occasions decrease as they move up the chain of command. A commander at the company level might have a platoon in direct combat calling for his direct and immediate attention while another deals with a humanitarian crisis, and yet another is disarming IEDs. This

dilemma as it exists today can inform us on how better to cope with it as it increases in frequency and amplitude in the future.

Persistent Conflict

Persistent conflict poses another leadership challenge. Humans respond relatively well to short bursts of tension followed by periods of respite. During the bloody trench warfare of World War I, commanders regularly rotated units from the front to rearward areas. This tempers the experience of intense combat and unimaginable carnage by shortening the period of exposure. Today and tomorrow, there is no clear front from which to rotate. What may have been intense combat for weeks or even months for World War II divisions has become a series of deployments with shorter reset times in between.

Persistent conflict implies persistent presence, whether in intense combat or simply engaged in extended operations. Soldiers steeled for a 12 or 15 month deployment engaged in full spectrum operations in an uncertain nonlinear environment expect to go home at the end of their deployment. Their focus is on survival and taking care of each other. Throwing them an unexpected challenge such as extending their tour or transferring them to another theater can be very disruptive if not catastrophic. In the future, the model of deployment changes to reduce this uncertainty, or some other adjustment may offer relief to units from prolonged periods away from home stations. Unpredictability taxes even the best of highly motivated units. Leaders must learn to cope with this, both in them and in their subordinates. It is certainly an issue of morale or the sense of well-being in individuals, but it is also an issue of chronicity—the cumulative effects of repeated deployments.

On the individual level, fatigue, and stress are cumulative. In larger organizations, the effects of long commitment with little relief in sight can lead to anger, indifference, carelessness, and failure to pay attention to details. Frequently, the stress that affects everyone affects the leaders even more. Soldiers and some smaller units can take breaks or naps while their leaders dare not relax. This danger of compounding stress and fatigue only increases with the level of engagement and the duration of commitment. Good leaders will seek rest when required. A leader can share responsibility with a trusted peer or subordinate leader long enough to ensure he is rested and fit for command. Add to fatigue the trauma of losing Soldiers to combat or accidents. Consistently, commanders report that the most difficult challenge they face is the loss of their Soldiers. They also report that nothing can prepare someone for this. Perhaps the most cogent reason for discussing complexity and persistence is their additive nature. If we know these dimensions of the future will grow,

then we must consider ways to mitigate their effects and ways to coach leaders in how to anticipate and recognize those effects. The machismo steely-eyed, tough as nails, never needs to sleep model may have its place in the future, but the understanding of human nature described in this functional concept suggests otherwise.

Selection

Given the two challenges described above the Army needs to examine how it accesses potential leaders, selects those for leader development and increasing levels of responsibility. One aspect of selecting and developing future Army leaders that warrants close examination is the one size fits all approach the Army tends to take in managing training and education. While not truly that fixed, nearly all Army officers and NCOs undergo the same programs of instruction and education in leadership development. This cookie cutter approach supports the assumption that every officer and every NCO must be prepared to lead. The problem with this assumption is that not every individual is suited to lead. However, it is a fact that some individuals are better disposed to perform leadership functions than others, a fact confirmed in the observed performance of selected leaders in action. The Army should examine why in units with all other conditions nearly equal (such as, organization, training, and operational situation), some units are more cohesive and effective than others. The commander's leadership abilities and his or her established climate is the answer.

All newly commissioned officers are by definition leaders. That is what the Nation expects of them. However, only some have the opportunity to command. Undisputedly, demonstrated competency at platoon level helps battalion commanders select potential company, battery, or troop commanders. Successful command at this level is prerequisite for key positions leading to higher level commands. So far, nothing is wrong with this process except that the Army functions on an "up or out" personnel management paradigm. When promotions and selection for command link to successful command experience, what happens to those who either do not get the opportunity to command, or who are excellent at the company, battery, or troop level but unable to adapt to the expanded demands at battalion? Similarly, there are those "late bloomers" who may not have performed as well at junior level command but learned more from mistakes than other contemporaries learned from success. This is one of the more important considerations for the future of leadership development. A command tracking system may be a beneficial concept, and a component of that should include leadership assessments by peers and subordinates—data that is available as a component of the evaluation process. A 360-degree leadership review may be the only valid means to assess those interpersonal skills.

> No man ever steps in the same river twice, for it's not the same river and he's not the same man.
>
> Heraclitus of Ephesus
> (535-475 BCE)

In the ramp up from Desert Shield to Desert Storm, the Army anticipated experiencing extensive casualties, including unit leaders. To prepare for this possibility, personnel managers quietly identified officers on standing command lists alerting them for possible deployment. No one anticipated a prolonged campaign along the lines of World War II where leaders took hands-on training seriously by pulling up and "growing" leaders on the job. While the shadow

command list for Desert Storm did not fully activate, the mere ability to identify that group of replacement candidates is a luxury unlikely in the future unless the Army deliberately identifies this as a required capability. First, the overall force is smaller, and second the pool of command-ready field grade officers that are not already in command is even smaller. The Army simply has not had the manpower nor has it developed the ability to maintain such a pool of command-ready replacements. The same applies for senior NCOs, warrant officers, and is even more challenging in the Army Reserves and National Guard. It takes time to develop leaders, many years in the case of battalion level officers and NCOs. It was common for an officer to enter service in 1941 as a second lieutenant and end the war as a lieutenant colonel or higher four years later. In 2020, a lieutenant colonel eligible for battalion command theoretically receives his or her commission in 2004. Those intervening sixteen years represent an enormous amount of growth and experience. General J. Lawton Collins of World War II fame was a lieutenant for seventeen years. He emerged from the war as a corps commander, but even seventeen years as a lieutenant loaded Collins with knowledge and experience.

Cohesion and Adaptive Decisionmaking

Leadership in the future operating environment, requires adaptive decisionmaking based on an assessment of the situation as viewed through the eyes of subordinates armed with the commander's intent and support. Leader stability, optimism, open communications, frequent presence at training and social activities are essential to developing an environment of confidence, trust, and respect. Good leaders also provide the context in which peer bonding is more meaningful, translating into better performance. Additionally, through frequent face-to-face contact, leaders must ensure that Soldiers understand their role and, the unit's mission and that the risks asked of them are both worthwhile and can contribute to personal growth. Role and mission clarity are less complicated in conventional combat operations of short duration, but recent experience demonstrates that these concerns will be problematic in future smaller scale complex contingencies. Without a significant level of leader involvement, there is risk that highly cohesive units may develop behavioral norms and objectives of their own choosing, especially if leaders are not proactive in clarifying purpose and roles, or perceived as uncaring, unsupportive, overly ambitious, and marginally competent.

> When evening comes and all are exhausted, hungry and possibly dispirited, particularly in unfavorable weather at the end of a march or in battle, you must put aside any thought of personal fatigue and display marked energy in looking after the comfort of your organization, inspecting your lines and preparing for tomorrow.
>
> General George C. Marshall

While Army leaders learn early that professional competence is an essential moral imperative, it is especially important yet rarely emphasized that Soldiers must see their leaders' capabilities in order to develop confidence in them. Likewise, Soldiers must have confidence that their leaders will neither needlessly sacrifice their lives through incompetence, nor waste them through indifference. Leaders must return their subordinate's loyalty and affection in kind, forming strong mutual obligations. Similarly, in units with strong vertical bonding, Soldiers reflect their leader's professional values and report that core Soldier values are very important to

them. This socialization process reflects the Soldier's internalization of these values as his or her own.

Leaders who place emphasis on the human dimensions of morale, cohesion, and mental preparation develop motivated and committed Soldiers. Such Soldiers are confident in their leaders, their individual and collective skills, their weapons, and equipment; have high job satisfaction; and develop strong vertical bonds. Conversely, when leaders overemphasize technical and tactical combat skills, vertical cohesion and Soldier psychological readiness can suffer, leading to lower combat effectiveness and a greater number of combat stress casualties.[183] Balance remains the key.

Strong leadership will take on greater importance as operations become more decentralized and units operate on a more dispersed, isolated and lethal battlefield. Building vertical cohesion is an aspect of leadership that the Army must address more extensively in leader development and training doctrine to bridge the gap between theory and practice. As historian John Keegan persuasively argues, "The personal bond between leader and follower lies at the root of all explanations of what does and does not happen in battle...its importance must not be underestimated.[184] The strength of bonds forged between leaders and led affects secondary cohesion.

Leader and Ad Hoc Team Cohesion

Chapter 3 introduced the topic of cohesion. Another less recognized influence on secondary as well as primary group cohesion is leader and team cohesion. Leadership teams must form a coordinated cohesive authority presenting a unified front. The quality of the cohesion of leader teams affects subordinate attitudes about unit level cohesion, the higher-level organizations, and the unit mission.

Future modular Force divisions and corps will be ad hoc groupings of BCTs and various other subordinate units. Division and corps commanders and their staffs will need to be adept at integrating subordinate commanders and their staffs at rapidly developing strong leader and team cohesion.

> When you talk about combat leadership under fire on the beach at Normandy, I don't see how the credit can go to anyone other than the company grade officers and senior NCOs that led the way. It is good to be reminded that there are such men, that there always have been, and there always will be. We sometimes forget, I think, that you can manufacture weapons, and you can purchase ammunition, but you can't buy valor, and you can't pull heroes off an assembly line.
>
> Sergeant John Ellery, 6th Infantry, 1st Infantry Division, WW II

Factors that undermine identification with the unit leaders threaten the legitimacy of their leadership, the efforts, and image of the larger organization and the Army, and increase battlefield stress. Leader teams also ensure subordinate leaders are prepared to assume higher leader positions.

Educating leaders must include emphasis on developing a cooperative leadership style rather than the more prevalent "super-competitive" authoritarian style. Training on theory and application of both cohesive and leader team building skills and conflict resolution is necessary at

all levels of the professional military education system. Selecting and pairing of leader teams for compatibility not in terms of similar attitudes or complimentary leadership styles, but in terms of their ability to work together and respect each other's views, requires more emphasis. Subordinates quickly sense friction between leaders, undermining vertical cohesion, and the Soldier views of the organization and the Army.[185]

The importance of cohesion in building ad hoc teams in highly fluid or ambiguous situations is less understood. In preparation for and performance in the anticipated operating environment, the Army will regularly team with joint, coalition, interagency, nongovernmental organizations, and other non-military actors in order to achieve success. In many cases Army units will be part of a system or network of interdependent teams. Army forces can expect to operate in the highly dispersed, networked environment characterized by virtual teaming described within the network-centric warfare or network enabled operations concepts.

Ad hoc teams often have specific non-overlapping roles for each team member. They frequently have specific, highly detailed roles and responsibilities. Without effective training or extended periods of experience working together, ad hoc teams often do not perform as well as required. Leadership becomes the critical enabler of team effectiveness.

Task Cohesion

The critical element unifying ad hoc teams is a shared understanding of their immediate environment, major goals, and strategic framework of how and why they are performing their assigned tasks. This form of cohesion is *task* cohesion and refers to the shared commitment among members to achieving a goal that requires the collective efforts of the group. A group with high task cohesion is composed of members who share a common goal and who are motivated to coordinate their efforts as a team to achieve that goal. This shared understanding allows them to adapt more rapidly to changing circumstances with less degradation in effectiveness. Like the other forms of cohesion, training, and effective leadership are the critical elements in developing this shared understanding. As with members of a single team, there are critical processes that enable systems of teams to work effectively together to accomplish a larger mission. Two of the critical processes are the two-way transfer of information (in and out) to the team and the hand-off of performance responsibilities to other teams or team member replacements.

It is also becoming more common for teams to disperse across several locations and link electronically via various means. This is particularly true of teams in military contexts. It will be more common in future OEs, as indicated by the emphasis on network-centric warfare or network enabled operations concepts. These teams face additional challenges in executing fundamental team processes such as communication and coordination. Much of the non-verbal component of communication is lost—gestures, facial expressions, and tone of voice—when communicating via distributed systems. However, distributed or dispersed teams do have advantages including the ability to interact directly and rapidly with relevant outside personnel and agencies. Leadership of distributed teams is a significant issue, particularly with respect to identifying best methods for conveying leader presence across electronic media.

The Army Leader as Negotiator

The shift from training for operations within sharply defined institutional chains of command, to the conduct of highly decentralized, diverse, and collaborative operations involved in future full spectrum operations, has placed a high value on negotiation skills. Such negotiation will occur within coalitions as well as with non-military actors. America's strategic success in future full spectrum operations may well depend on an expanding range of skills that leaders at all levels require—particularly junior leaders—that includes negotiation skills.

Negotiations have immediate tactical importance, operational significance, and potential strategic implications. Traditionally Army leaders have a great deal of experience negotiating but not necessarily in contexts of ambiguous authority, limited political guidance, and significant cultural diversity. Too many military leaders approach negotiation simply as a battle of wills, skillful posturing and tactical positioning, rather than as a collaborative search for mutually acceptable solutions. While the confrontational approach is appropriate in some circumstances, leaders facing complex day-to-day challenges of influence need to develop a more sophisticated understanding of negotiation and a robust repertoire of negotiation approaches that takes account of the various cultural perceptions and expectations of those they hope to influence.

A successful negotiator begins by reflecting upon the assumptions they bring into the process and develops the skills to identify and test assumptions in each negotiation. Negotiators consider many possible measures of success and develop their abilities to choose a proper measure for the given situation. As part of their preparation, negotiators must be ready to seek new instructions, if those given do not seem suitable. They need to develop the techniques to prepare for negotiation instantaneously or over time. Leaders need to develop approaches to negotiation, ranging from principled bargaining (a joint problem-solving approach), to positional bargaining (one of many tactical approaches), with myriad variations in between. In addition, a negotiator needs to develop the skill of "changing the game" when facing the hard bargainer and in managing the communication and relationship dynamics of negotiations in different cultures. Lastly, the leader needs to learn from each negotiation and leverage lessons from one interaction to the next. Of course, leaders also need to be able to manage and coach other negotiators.

9-3. Leadership and Battle Command

Combat Leadership

Competence, trust, loyalty, and empowerment are leadership imperatives that span a variety of contexts, but nowhere are these qualities more important than in operations under conditions of eminent physical danger where serious injury or death may result. How does leadership in such high-risk, challenging and inhospitable situations, differ from leadership in more mundane contexts? Observers have found that men and women who lead other people in places and through situations that most would find intimidating, if not outright horrifying, will often behave in ways that may provide insights into developing future leaders for the Army. Such leaders and situations referred to as *in extremis* or, "at the point of death," place a premium on leaders that are passionately motivated to lead in such situations.

> The authentic leader is true to him/herself and the exhibited behavior positively transforms or develops associates into leaders themselves. (Luthans & Avolio, 2003, p. 243)

These influential leaders and others like them are authentic. Followers are attentive to, and able to recognize, a lack of sincerity or clumsy management techniques displayed by someone in a leadership position or role.[186] Authentic leaders are competent, confident, and optimistic leaders of high moral character who are aware of their own thoughts, behaviors, abilities, and values. In short, they are self-aware leaders. Authentic leaders are also attentive to these characteristics in others and the situational context in which they operate. This collective awareness assists them in adapting their leadership to the conditions inherent in the combat setting. In elaborating on authentic leaders their projection of optimism, hope, and resiliency, provide keys to understanding why those who are authentic are also effective at commanding follower loyalty, obedience, admiration, and respect.[187]

It follows, that in circumstances where leader optimism, hope, and resilience are especially valued, authentic leaders assert a powerful influence. Specifically, in situations where followers' lives are threatened, those at risk seek out feelings of optimism, hope, and resilience literally defining the promise of survival.

The genesis of The Army Values is the uniquely human character of the Army and its professional service—the Army is the organization that sustains democracy by preserving and taking human life, in accordance with the national will. Recent combat operations show that

successful leaders demonstrate a pattern that includes a flexible pragmatic leadership style, a learning orientation, and a willingness to share risk with, and adopt the common lifestyle of their Soldiers. It does not take long for followers to recognize a leader's indifference or incompetence.[188] Combat leaders sensitive to those around them develop a collective awareness that enables them to adapt their leadership to combat conditions. Their projection of optimism, hope, and resiliency explains in large measure why such leaders are also effective in earning follower loyalty, obedience, admiration, and respect.[189]

One additional quality that stands out among successful combat leaders is that they continue to analyze themselves and their actions. They understand themselves and the situation they were in and attempt to learn and help others to learn from those experiences. They share lessons learned. A critical component of leadership is the idea that to become an authentic leader, a leader must first have an accurate self assessment. Their candor provides a wealth of experience for students of leadership to draw from and to apply in leader development programs for the generation that will lead Soldiers and units in future full spectrum operations.

> The Soldier's confidence in the commander is also critical in protecting him from overwhelming battle stress…[This confidence derives from] three elements that inspired confidence in commanders (1) belief in the professional competence of the commander, (2) belief in his credibility, and (3) the perception that he cares about his troops. While in garrison all three components are equally important; in combat trust in the commander's professional competence becomes primary.[190]

In essence, the commander serves as the lens that focuses battlefield, unit, and individual factors affecting the Soldier's evaluation of the situation, which can influence their success or failure in coping.[191] The leader helps shape the Soldiers' appraisal of the situation into a unified expectation by unit members, amplifying the threat or reducing it.

Recent studies show that Soldiers and subordinate leaders frequently think that some leaders are not effectively communicating, are trying to enhance their careers, are not providing meaningful or effective training, are micromanaging for short term success at the expense of long term effectiveness, and fail to exhibit clear thinking and reasonable action under stress.[192] Command climate continues to be a significant factor affecting the development of cohesive competent units and retention. Future leaders will need to assess Soldier morale and unit cohesion across the deployment cycle listening to subordinates and examining indicators such as the Soldiers quality of life, disciplinary problems, injuries, unauthorized absences, and sick call. Commanders should provide feedback on how the unit is performing and on the current situation in the form of a constant dialogue with subordinates. While detailed results are not required, the more transparent the feedback the more "buy in" the unit members will have in supporting remedies to address unit concerns.[193] So far there is little new in this discussion of leadership. Will the future be so different that leaders will need different skills and attributes? Absolutely, and not just in degree, but also in precision, precision aided by social science and technical developments that reduce guesswork in decisionmaking processes. This section's discussion of combat leader challenges leads next to a discussion of methodology—the practice of battle command.

The cauldron of combat both demands and forms leaders. It will likely be the experience for future commanders that it has been for commanders in every American war since the Revolution. Given that starting point what are the differences the future hold for combat leaders?

TRADOC Pamphlet 525-3-3 outlines several key ideas relative to the function of battle command. The first is the *centrality of the commander*. This focus on the individuals who occupy positions of command narrows the discussion of leadership to the select group of practitioners of the art and science of battle command. Others in military service from Soldier to general practice leadership in different capacities than those charged with command responsibility. This key idea highlights this difference while establishing the primacy of commanders—a concept warranting future emphasis.

Next in the list of key battle command ideas is the *role of the commander*. Here the concept describes what the commander does in terms of understanding, visualizing, describing, directing, and continuously assessing the situation. It is not a mechanistic checklist of how to command, but a process of blending the art and science of operations in the command function. As pointed out earlier in this chapter, not everyone is necessarily capable of performing this blending, particularly as the level of command rises to the operational levels of division and higher. The concept describes the operations process of planning, preparing, executing, and framing/reframing in a continuous loop back-dropped by assessment. This particular key idea is about process, but it is about leadership, taking into account actions and thoughts ingrained in the commander. It introduces a new idea of framing and reframing in the decisionmaking cycle.

The next two key ideas are *mission command* and *self-synchronization*. Inextricably linked, these are well established doctrinal terms reflective of the American style of encouraging initiative in leaders. Essentially, the idea of mission command is one of communicating intent clearly enough so that subordinate commanders know expectations well enough to continue the mission in the absence of orders. Similarly, armed with the senior commander's intent, subordinate commanders synchronize their operations within and between commands towards the common objective with or without communications. This particular set of ideas places a tremendous premium on the competence of commanders, in their initiative and reliability, their sense of commitment to the mission, and their sense of duty. It is an enormous challenge to develop leaders possessed of this level of confidence in both their superiors and subordinates. It is an intangible aspect of battle command that moves away from technological solutions and turns to trust, faith, and proven reliability.

The remaining three battle command key ideas deal largely with the mechanics of C2, the science counterpoint to operational art. *Collaborative planning* and the *accelerated military decisionmaking process* articulate a conscious effort to move away from lockstep planning and execution processes and move toward planning done collaboratively rather than vertically. Instead of plans and orders issued from higher to lower, the concepts calls for horizontal fusion of the planning process with commanders at all levels being capable of participating and shaping the plan. Rather than the chaotic anarchy this idea might evoke, it relies on a collaborative information environment in which vertical and horizontal planning and execution coexist. The implication for leadership is that senior, more experienced commanders must be comfortable

with both cultivating their subordinates and with relying on them to accelerate the planning process.

Decision superiority treats the cognitive aspect of battle command and the fight for information. It addresses the understanding portion of the role of the commander as well as the assessment effort. In terms of leadership, it calls for mental agility and decisiveness in commanders. Decision superiority does not suggest perfect situational understanding. Rather it stands as a goal that all commanders must fight to achieve and capitalize on. Even more important from the leadership perspective is commanders who do not hesitate to make decisions even in the face of limited information. Waiting too long for that last bit of information can make the difference between success and failure, between Soldiers living and dying. No matter how successful the military becomes in obtaining decision superiority, it remains but one tool until applied. In the end, the objective of this key idea is to move faster than the adversary can react. Consequently, in addition to agility and decisiveness as essential qualities in a commander, self-confidence becomes nearly paramount to achieving decision superiority.

Lastly, a *single integrated Army battle command system* is necessary to provide the network and the materiel side of battle command. Relative to leadership in the human dimension, the idea of uninterrupted communications, a common operational picture, and a collaborative information environment—seamless from space to ground—is the dream of all commanders. Over reliance on this or any other system, on the other hand, marks a failure of leadership. Commanders must be skilled users of the battle command system, of schooling their subordinates in its use, and of insuring that they cultivate a command leadership climate that encourages decisive action even when the network fails.

Thus, the *Battle Command* key ideas do not operate in isolation. Mission command and self-synchronization facilitate accelerated planning and decisionmaking. They also provide counters to the fog of war and the inevitable failure of parts of whatever system supports C2. The discussions on S&T in the last chapter present many of the potential developments that will either enable or improve the application of battle command key ideas.

9-4. Conclusion

Leadership is the thread that ties this *Human Dimension* study together. It permeates every chapter as the essential integrator that will ensure the Army's continued success in accomplishing its mission. Leadership is the penultimate human endeavor. In the future, limiting the amount of force Soldiers apply and controlling the Soldier's urge to lash out may be as difficult as getting Soldiers to act in the extremes of ground combat—killing other humans, often face-to-face.

Preparing Soldiers for leadership in canned classroom cookie-cutter fashion simply will not do, nor has it ever sufficed. Preparing future leaders to deal with uncertainty, prolonged persistent conflict, and increasing complexity while building cohesive competent units as described in this concept will require innovative and imaginative approaches in all the domains of DOTMLPF. The required capability chapters of the six other U.S. Army functional concepts list some of these approaches (see app A).

Selecting leaders in the future may require changing the existing career paths for NCOs and officers in order to groom those most suited and motivated for leadership positions. There is a danger of elitism in pursuing this change, but there is a concomitant danger of failing to select the very best leaders. Seeking balance, this concept also suggests that the Army will need an increasing number of specialized Soldiers skilled in linguistics, anthropology, and a variety of technical skills. The implication for personnel management will be creating meaningful career paths and opportunities for advancement for all Soldiers without favoring those in leadership tracks.

This chapter deliberately leaves the description of leadership to other documents such as FM 6-22. It focuses on an evolving picture of the future in which the nature of warfare does not change fundamentally, but where leadership challenges change largely through quantitative increases in information, complexity, and long duration in persistent conflict.

As the Army struggles to identify what the future will demand and how to prepare leaders for those demands it needs to be wary of trying to create leaders that are jacks of all trades as the Army has tended to do in the past. If the Army wants masters of the trade of battle command, it must cull out those best suited for the challenge and tailor their careers to capitalize on those experiences that will produce and encourage truly extraordinary practitioners of the art and science of battle command.

Vignette

Task Force Green Command Post, Darwin, Australia

"Sir, AO Aerie's been compromised," Major John Taylor reported to Major General Tasker, Commanding General of TF Green.

"So I heard, John. The Rangers got out with only two killed in action, right?"

"Yes sir."

"And the 1st Combined Arms Battalion is en route as we speak. Colonel Odermann?"

Jim Odermann, the division (TF Green) Chief of Staff turned from the flexible display covering the entire end wall of the shelter replying, "Operations already sent them the divert code, sir. Brigade signaled receipt and approved en route change in landing area to AO Foxden. They've got about an hour for an en route rehearsal."

"Thanks Jim. I want to leave them alone and watch the rehearsal from here."

Lead Condor aircraft somewhere over the Arafura Sea approaching easternmost Indonesia

The 1st Combined Arms Battalion lead element consisted of the first elements of the RSTA Company now mounted in six Condors less than 30 minutes out from their new landing areas in AO Foxden. The virtual rehearsal had gone pretty well considering that they had prepared it as a branch plan and had actually done an excursion like it on the last training center rotation, but Captain Toby Brown was not at all pleased.

"Top, I don't care how much data and feeds we've got on the landing areas in Foxden, nothing is as good as eyes on the ground! Why couldn't they get some other special forces in there?" he grumbled, knowing the First Sergeant didn't have a clue. They'd been awake for at least 32 hours with almost no break from deplaning from the C17s and uploading the Condors. Not much chance of resting on the tilt rotors either, especially with the change in plan and the virtual rehearsal. Brown's company was good. The best in the battalion if not the brigade, friends told him, but his guys were tired. Now they would be hitting the ground essentially blind except for the video and digital images sent by satellite and some Air Force drones. His mission was reconnaissance, intelligence, surveillance, for crying out loud, not bloody forcible entry!

"Touch down in two!" The chief engineer shouted.

RSTA crews in all six Condors were already mounted in their FSV-Rs. Gunners brought bands of ammo to the receivers of their weapons, locking and loading. Drivers sat poised to hit the starter as soon as the ramp went down. Infrared systems and millimeter wave radars were up and running drawing power from the umbilical cable connected to the Condor.

Condor 1 landed in a plowed field pointed west. As the crew dropped the ramp, flares lit the sky exposing the monstrous quad tilt rotor and its precious cargo. The FSV-R roared off the ramp which was already coming up as pilot, Army Reserve Captain Marcus Lee pulled pitch with all he had. Where the flare came from was anybody's guess, but one thing was certain: It wasn't friendly.

Toby Brown saw his other vehicles moving east to the edge of the field as they'd rehearsed. He wondered if the sound of the Condors triggered the flare. OPFOR used that trick at the National Training Center to keep from having to watch the whole damned desert for potential landing Condors. How long would he have before the shooting started?

Not long enough, as it turned out.

0404 hours, eastern portion of AO Foxden

Six FSV-Rs spaced more than 200 meters apart rolled quietly in the direction of Pekanbaru International Airport some 50 kilometers to the east. Their mission was to recon lanes and clear routes for the rest of their battalion vehicles as they arrived in Foxden. The rest of the RSTA Company should arrive in two sorties about 15 minutes behind Captain Brown.

"Clear. No mines. No IEDs. No sign of hostiles," Sergeant Topping noted quietly. "Driver, let's swing northeast heading 060. I want to get a closer look at that power station that's got our screens lit up."

Topping's crew scanned their helmet displays and looked down occasionally to get the fuller picture on the glass panels. They could see the rest of RSTA and, so far, not even a hint of a red icon to indicate threat.

"I wonder how long it'll take Ibn Ander's goons to react to that flare back there, sergeant?" Specialist Booth, the driver, asked as he took up the new heading.

"Not long at all if they're half as good as OPFOR at Irwin, Ted," Topping replied. "We all need to stay on our toes. The Hummingbirds and Wasp unmanned aerial system's we launched ought to give us plenty of warning.[194] *Besides TF Green is getting Predator and Global Hawk feeds. If anything heavy enough to light up their sensors moves it'll be some pretty spectacular fireworks."*

"Yeah, assuming it's bad guys. What happens if some farmer's tractor pops up?"

"Well, that's why us blood and guts RSTA guys are here, Ted," Sergeant Topping replied thinking this marshy field and the looming jungle were a far cry from the Amphitheater at Irwin.

"Damn!" Booth yelled. "Did you see that?" he screamed jerking the FSV-R to the right to avoid a massive carcass that could have been a cow or an elephant.

It was barely warm enough to register with their thermals. Whatever had killed that animal was not very friendly. It looks like it had been shredded or butchered inexpertly. Topping tensed, remembering how the insurgents had mounted IEDs in animal carcasses in Baqouba.

"Scans explosive free, sergeant," Specialist Mike Wright announced. He had the directional sniffer control as well as their 20 millimeter cannon to operate.

"Water buffalo," Booth announced. "Looks like a mine got it. Sure there's no explosive residue Wright?"

They rolled by the dead animal, senses heightened to the hidden dangers. Everything looked about right to Topping, but that made him especially wary. The mine threat made him contemplate dismounting some scouts. Before he could tap in that order RSTA 1-4 went red on the screen and then blank!

"Incoming!" Screamed a voice on the previously silent radio. No identification on the caller, Topping noted.

"Driver hit it!" Topping shouted. Casualty signals now lit up the screen near where 1-4 disappeared. They surged forward, the mine detector set on highest sensitivity. Topping couldn't assume it was a mine that got his buddy's FSV-R. Could be indirect fire, which meant someone, or something, was watching them. Best to keep moving recording the track which would automatically arrive on all RSTA screens as a cleared route.

Outside the FSV-R the air was thick with moisture and buzzing with insects. Booth, the driver, responding to digital commands from Topping zigged and zagged around obstacles he

couldn't even see. It was pitch dark making even their infrared and enhanced optics displays vibrate eerily. A loud explosion and huge ball of fire behind them shook the ground and rocked the FSV-R.

"Dear God," Topping worried, "A Condor?"

What had started out as a stealthy security mission where TF Green had the advantage of total surprise now seemed like an orchestrated ambush, but where were the enemy icons? No reads from any of the overhead systems picked up anything.

Captain Brown in RSTA 6 on line with Topping's position, tapped in a spot report and got an instant confirmation on the Condor and one of third platoon's crews being lost. Insertion aborted. Alternate Landing Bravo*, came the next message. They were on their own. Nothing to do but continue the mission and aim for linking up at Bravo with the rest of the battalion. Brown sagged in his seat, taking a pull from his Camelback, exhausted from more than 36 hours without sleep and drained of adrenalin reserves. "Must be missiles," he thought. That would explain the absence of enemy icons. That also meant that the Anderian's possessed standoff defenses more sophisticated than predicted.*

He had to pull the RSTA Company together and get to Bravo before light, and do it from the middle of a booby-trapped jungle. He found himself longing for the OPFOR and Granite Pass at the National Training Center.

Should he check on 1-4 or go back to the Condor? "No!" his mind struggled, "The mission's what matters." The Captain ordered the protect battle drill which all his elements were doubtless executing already. Their systems were capable of picking up threats from on board and external sensors. Brown knew better than to rely on them alone, bracing for more Anderian surprises.

This continued account of a fictional battle only begins to paint the intensity of prolonged operations in a combat environment. Similar accounts taken from historical battles are rife with the sheer terror and total exhaustion the Soldiers coped with for sometimes days on end. What this encounter in AO Foxden demonstrates is that the stress experienced in combat does not necessarily require direct engagement in furious close swordfights. An asymmetric opponent taking advantage of his home turf and relatively simple and inexpensive devices can turn even the most modern and well trained force on its heels. Leaders in such an environment can freeze up, become fatalistic, and suffer rage at not being able to strike back. Loss of sleep, fear, loss of friends and major weapons systems thought indestructible, exacerbates the leader's challenges.

Required Capabilities

TRADOC Pamphlet 525-3-3, chapter 5, contains required capabilities across all the domains of DOTMLPF for the battle command function. Reproduced here include those pertaining to leader development and education. Future Modular Force leadership development programs will require the capability to provide-

- Data, information, and knowledge management solutions to understand the risks, including information overload, and benefits of any particular architecture they engage in the course of an operation.
- The ability to co-evolve with all the other joint C2 enablers, so that leadership development keeps pace with the impact of the other enablers.
- The means to allow leaders to grow and develop trust experience. Attaining trust experience through extensive use of simulation, scenario-driven war games and experiments, and training exercises that challenge leaders will reduce the tendency to learn "on the job" in actual combat operations.
- Senior leaders who allow space, so subordinates can experiment within the bounds of intent based orders and plans, and who are willing to take calculated risks and accept the possibility that less experienced subordinates will make mistakes.
- Self learning through professional reading and professional military education.
- Emerging computer based war games and simulations molded to teach the art and science of war.
- Education and leadership development programs for Army officers for operational level command and staff.
- The junior leaders of the future Modular Force, such as young captains and junior NCOs, are approximately 10 years old today. As these pre-adolescents mature, they will adopt general characteristics that distinguish them from previous generations. Future Modular Force commanders must be aware of such generational differences when applying the Army's time honored leadership principles.

Questions for Further Examination

- Should the Army institute a command tracking system to focus on those who are best suited to command?
- How can the Army capitalize on leadership studies and efforts underway in other services, academia (social sciences), government, and other countries?
- What tools and policies can assist the Army in early identification of individuals with leadership and command potential?
- How can the Army strike a balance in officer and NCO career development progress to provide opportunities to study language, culture, or other personal enrichment subjects?
- How can the Army best prepare today's young leaders to cope with tomorrow's challenges?
- What criteria beyond technical tactical competence should a selection board consider for command candidates?
- Can selection boards get an indicator of adaptability, empathy, or other human dimension qualities required of future leaders?

- What developmental experiences and education should the Army provide to leaders to help them meet their full potential?
- What developmental experiences and education should leaders provide to subordinate leaders that would help them meet their full potential?

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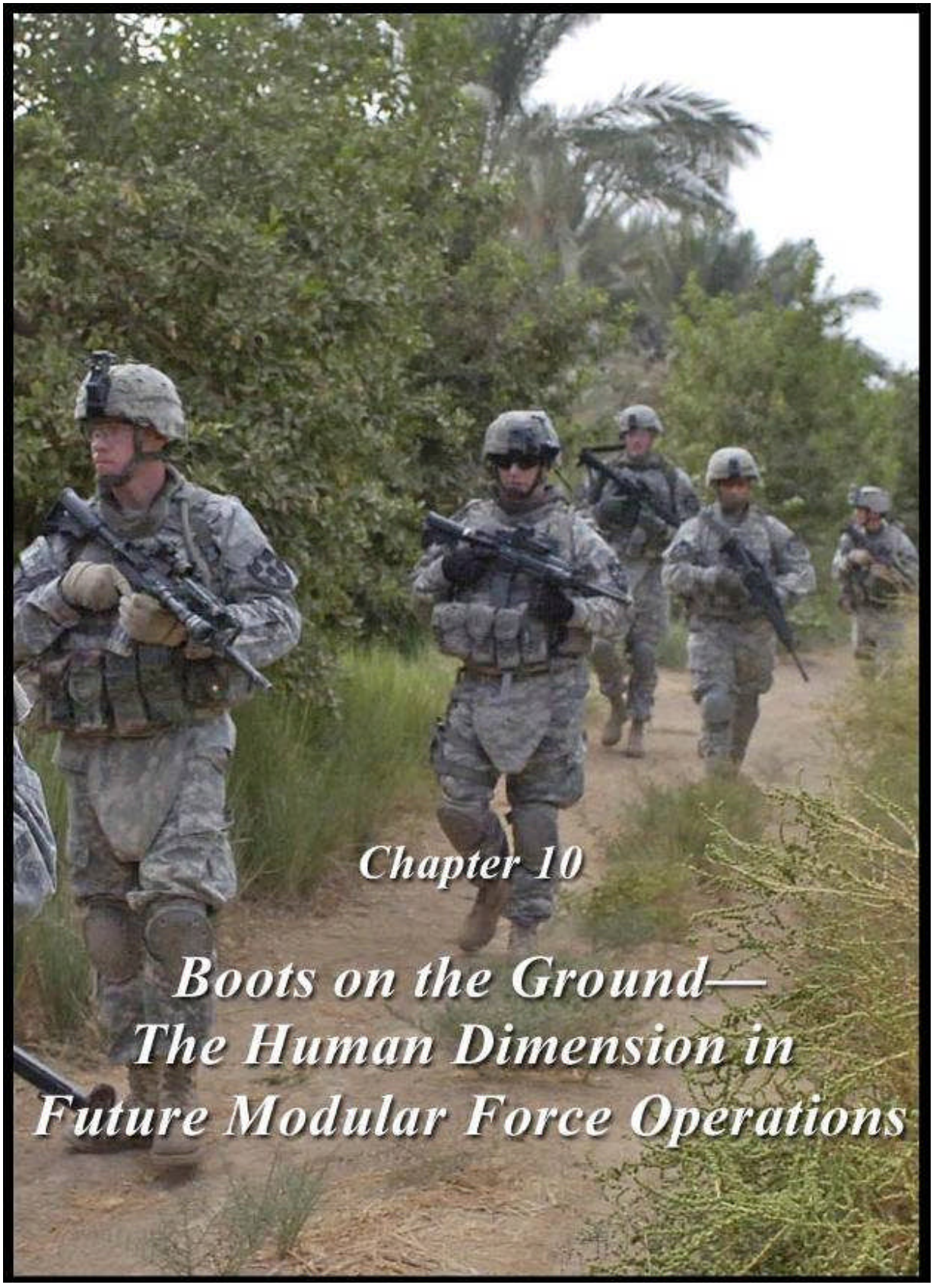
Chapter 10
Boots on the Ground—
The Human Dimension in
Future Modular Force Operations

The greatest leader in the world could never win a campaign unless he understood the men he had to lead.

GEN Omar Bradley

Chapter 10
Boots on the Ground: The Human Dimension in Future Modular Force Operations

10-1. Summary

The human dimension has always been the most critical dimension of military operations. Soldiers as individuals and in groups are the ultimate locus of ground operations. The complexity of current and future full spectrum operations makes this statement even more relevant today than in the past. As history repeatedly demonstrates, it is extremely difficult to anticipate with certainty what future conflicts U.S. joint forces will face. What is likely is that persistent conflict will be the norm for many years to come. For the Army this means human engagement with a broad and varied collection of populations and organizations.

> Make no mistake about it; technology cannot transform war into a genteel electronic exchange as some hope. Video games are not the paradigm for warfare in the next century.
>
> James Dunnigan
> *Digital Soldiers*

In approaching the challenges of future full spectrum operations, the temptation will remain strong to focus on the more tangible elements and mechanics of conflict; weapons, C2 systems, logistics, doctrine, training and organizations. These factors attract attention in large part because they have always enabled the Army to be more effective in conventional wars. Some prefer the science of war over the art—the psychology of leaders and followers, the sociology of group behavior, the cognitive basis of leadership, battle command, and decisionmaking. This preference exists despite the fact that human behavior and conflict have existed for much longer than the current technology.[195] In fact, warfare will always be a mixture of the human with the tactile tools of warfare. This concept consistently argues for balance—a holistic approach—that recognizes that the human—trained, motivated, well-led, and indomitable—has always been the foundation for achieving this balance.

In addressing the preeminent component of the human dimension triad—the moral component—equipment and weapons are useless without personnel who have confidence in and are dedicated to each other and their units, are motivated to achieve the mission, and are physically and psychologically resilient in the face of hardship, loss, and death. No other organization exposes its people to a more extensive range of human adversity resulting in profound individual stress and conflict. In such circumstances, it is natural to question organizational values. Therefore, in executing future operations, the Army must also continue its emphasis on principled conduct. Adversaries who view such conduct as vulnerability will be the first to exploit any American ethical wrongdoing.

Future full spectrum operations require developing cultural intelligence and understanding because "we must be able to offer populations of countries affected by war the hope that life will be better for them and their children because of our presence."[196] The nature of future conflict and the reality of current U.S. capabilities make the military the primary agent for operations across a wide spectrum. While there is clear need for other agencies to play key roles, no other

organization is prepared to assume many of the responsibilities these operations require, such as nation building.[197]

Finally, within the moral domain, the Army culture that previously focused on major combat operations must begin to shift to a culture that recognizes changes in the Army's role and responsibilities including a broader range of military operations. Instilling Soldiers with the warrior identity includes the development of other professional identities related to humanitarian assistance, peacekeeping, and policing functions that must also become a necessary part of the TLE strategies. Future conflict will not always be resolved through purely military solutions. Future TLE strategies and solutions must support a robust culture of rapid and continuous learning that accelerates the development of Soldiers to meet the challenges of the twenty-first century.

For units to operate effectively, Soldiers will require an extremely broad and complex range of competencies, skills, and knowledge attributes and abilities—the cognitive component of the human dimension. The ongoing challenge will be striking the right balance between training and professional education. Within this balance, the Army also must tailor training and education to the Soldiers' needs. Not everyone needs training in every possible skill. Even if the Army makes the right choices in balancing training and education, it still must determine who will develop and deliver the training. Training resources often conflict with demand for new technology. Training is expensive and frequently pays the bill for equipment and operating costs. The Army must, of course, take advantage of the latest technology and incorporate it into units and other organizations to complement and augment Soldiers.

The Army's training and leader development vision correctly identifies the requirement for multi-skilled leaders that can learn and adapt in ambiguous situations in a constantly evolving environment. They must be self-aware, adaptable, comfortable employing new information age technologies; technically, tactically and culturally competent; possess interpersonal, and critical and creative thinking skills; and possess the ability to effectively leads units and JIM organizations.

The physical demands on Soldiers will remain. Given future trends, deployments to harsh environments are likely to be more demanding then ever before. Physical preparation will involve a holistic development and assessment of the health, physical fitness, and physical performance of Soldiers. Future assessment programs at both the individual and unit level must become more effective. The verifiable contribution physical fitness adds to cognitive processes and psychological resilience as well as mission success makes it an essential component of Soldier development. Guided by well established principles, physical development of Soldiers for future full spectrum operations will require programs broad enough to tailor as necessary to meet the mission, the Soldiers MOS, and the rapidly changing requirements of the OE. Such programs will resemble developmental programs for athletes. Future technological and biomedical advances promise to enhance physical and cognitive performance; however, there are ethical thresholds the Army must address before adopting them safely and effectively.

The Army must determine how to best access and manage the human capital for the future Modular Force. While the all volunteer force and current recruiting programs and personnel

systems have served the Army and its Soldiers well, it is unclear whether these systems will hold up under the strain of an environment of transformation while engaged in persistent conflict. In recruiting and developing the Soldiers for service in future full spectrum operations, the Army envisions increased demands for responsibility and innovation all levels. As discussed, attracting young Americans possessing the desired foundations of moral, cognitive, and physical skills and abilities willing to serve will continue to be a challenge in the future.

Since the creation of the all-volunteer force, systems to promote, assign, educate, and retain Soldiers have succeeded in attracting and retaining the required quantity and quality of personnel. Despite this success, the Army will likely require new personnel policies to support the current and future vision of a BCT based force in future full spectrum operations. The dual challenges of new force structure and continued deployments to multidimensional conflicts point to a need to adjust the Army's personnel systems in order to support creativity, risk-taking, and flexibility while sustaining the family and encouraging service in the Army as a profession. Systems and procedures that empower individuals are essential to encouraging continued service and professional development. This requires developmental experiences in repeated assignments in the operating force enriched by professional education and meaningful assignments in the generating force. In short, supporting the adaptive and agile force required for the OE of 2015-2024 will require reassessment of existing recruiting programs and personnel management systems.

Combat and operational stress reactions and burnout are facts of war. They will continue to affect Soldiers in the future, but the Army can and must find better ways to prevent stress casualties. When prevention fails, future treatment of these victims must continue to be humane with considerable care to avoid stigmatization and return Soldiers to duty.

Many aspects described in this concept of the components of the human dimension will potentially benefit from S&T. Means to maintain and monitor Soldier health, improve strength and endurance, and enhance performance of military tasks show great promise. Research into human behavior, sociology, and stress management will also continue to provide improvements in Soldiers' morale and well-being. Networked systems of weapons, communications, intelligence, reconnaissance, and related functions will extend the Soldier's reach and further enable the Army to employ the future Modular Force.

10-2. Conclusion

The thread that links all the components of the human dimension together is competent, caring leadership that understands how to develop a unit climate in which cohesive, effective units can grow. "The key to climate is leadership and senior leadership in particular."[198]

Whereas the moral component remains preeminent within the human dimension, effective leadership is the decisive factor that brings all aspects of the human dimension together. Leadership, climate, unit effectiveness, Soldier satisfaction and morale, and psychological resilience are closely interrelated. The leader's behavior has the greatest impact on unit climate and effectiveness. Trust in leaders is essential to units, especially in combat and requires a

special spirit and bond among members that leads to belief in the unit's purpose, their value to the team, and their role in achieving success.

Aligning leadership practice with principle is essential to developing confident leaders capable of operating in complex and unpredictable environments in future full spectrum operations. It is also an important factor in leader retention. Junior leaders must be able to make independent judgments and take risk knowing they have their commander's support. Confidence and competence develops through practice reinforced by solid developmental feedback.

> We must develop the confidence to grant authority to those we send to conduct these complex operations with the responsibilities laid on their shoulders. . . . This confidence will only come with selection and training the right people.
>
> General Rupert Smith
> *The Utility of Force: The Art of War in the Modern World*
> 2007

The Army understands effective leadership is the key to understanding the human dimension. Trusting, respecting, building bonds of mutual affection among unit members, taking care of Soldiers and developing subordinates has been a part of Army leadership doctrine since its founding. Exploiting this understanding and experience will be the deciding factor in preparing the Army for future full spectrum operations during the 2015-2024 timeframe. The Army of the future must remain a values-based organization manned and equipped with the best possible Soldiers and units our Nation can provide. This pamphlet opens the door to the changes the Army must consider to meet the challenges of the future. Written with purpose, it encourages discussion and instigates further research into all the domains that make up the human dimension—centered on the most critical element, the American Soldier.

Vignette

Pekanbaru, Sumatra, Indonesia

Associated Press News. Reports cleared by the Information Office of the Pacific Command in Hawaii indicate that coalition forces had surrounded the capitol where Mr. Ibn Ander is reportedly holding up. General Faradad Dumai, Ander's Army Chief of Staff, turned himself in to American forces at around 3:00 a.m., according to coalition spokeswomen, Andrea Shilling. The general reported that he had issued orders to all Anderean forces to cease military operations and return to their garrison locations.

Ms. Shilling, speaking to reporters from Java, indicated that Pekanbaru had fallen in less than 2 hours. As U.S. Marine forces entered from the north Army TF Green penetrated the city from the east and west, having secured the international airport in a dazzling parachute assault that started just after dark on Tuesday. Immediate reports of this simultaneous landing and near bloodless seizure of the crowded airport came from numerous cell voice and text messages and live video from hundreds of people in the airport.

"It was a nightmare!" British citizen Clary Iden texted his wife Ruby who was waiting for his flight in Darwin, Australia. Mrs. Iden shared his messages and the pictures her husband sent with Australian security personnel as soon as she realized her husband's peril.

"Clary's a cool head normally," she told Associated Press reporters. "For him to panic like that it had to be bad, really bad. I'm just glad it's over and that he's safe."

Iden was part of a UN observation team wrapping up a 4 day fact-finding tour of the Anderian Sumatra Caliphate. Apparently, word of the impending coalition attack turned the crowded terminal into a heaving mass of humanity trying to escape the building. The number of injured or dead is not known at this time.

TF Green Command Post, Pekanbaru International Airport

Colonel Odermann stood before the screen detailing the status of TF Green and other coalition forces in and around Pekanbaru.

"Sir," the Division Chief of Staff began, "you've seen this unfold according to the plan so I won't ask the staff to give you their updates. Major King has the battle digits from all our units and is ready to play it back for you. It's short, sir, filtered to major actions and muscle movements just like the AARs at the training center."

"Okay, King, let me see your masterpiece," Major General Tasker said smiling. "But, Jim, one question first."

"Millsaps, sir?"

"Reading my mind again, chief?"

"No sir, but I know he's the only officer we haven't accounted for."

"Excuse me, sir," Major King interrupted.

Odermann flashed the staff officer a look that would have stopped a lesser being in his tracks.

"What is it King?" Tasker asked, noting the chief's flaming eyes. "Don't tell me you've got something you haven't told Colonel Odermann."

"It just came in, sir. Millsaps was picked up by 3rd Brigade about twenty minutes ago. He was making his way on a bike to the airport. He'd lost his helmet and most of his gear landing in the river. Brigade says he's fit to be tied that he missed the action. Not a scratch on the guy."

When King finished his short report on Millsaps the dozen staffers broke into applause and even Odermann smiled, clapping enthusiastically. TF Green had suffered 10 killed in action from the Condor that exploded in AO Foxden, apparently a helicopter mine victim. Otherwise

Operation Thunderstorm had only claimed about 40 injured or wounded, mostly from the RSTA Company that had picked its way through the heavily booby trapped jungle east of AO Foxden.

Tasker watched the video, marveling at how smoothly everything had gone. The "show," as they'd come to call the post operation video, looked like a cross between an action movie and a PlayStation 10 war game. Specialists assembled data from all division systems, classed them electronically, prioritized those that would go in the final edit, and then ran the resulting digital stream through the DEMON system to produce the studio quality video they were now looking at.[199]

They watched the Ranger insertion and aborted mission. The scene next switched to an overhead view of the Padang operation showing the coalition feint and the Anderian swarming boats falling for the decoy and getting blown to bits by their own mines and coalition standoff fires. The actual landings north and south of Padang drew the defenders away from their prepared positions. British and Australian forces attacked them from the high ground behind the defenders whose leaders had planned on dispersing into the foothills after a fight on the beaches. Instead, faced with annihilation, the vaunted Anderean brigades surrendered.

The video displayed the airborne operations using icons on a moving map zooming in on actual buildings, the runway, and the terminal to show the details. Platoon and company symbols dissolved into actual Soldier icons as the airport seizure unfolded. It almost looked like a choreographed and scripted play, which, in many ways it was. Not a single aircraft, civilian or military was damaged. Anderean air defenses never got to respond, having been neutralized by the Airborne Laser and other nonlethal directed energy systems. Red icons in and around the airport blinked off one after the other as the operation proceeded, and in less than 7 minutes of the video stream the airport was secure. General Tasker knew that the whole airborne operation had in fact lasted 6 long hours. It was the phase of Thunderstorm that he worried about the most.

The screen flashed with the flares and explosions in AO Foxden and showed the RSTA Company's laborious efforts to clear routes through the jungle for the BCT. In addition to the FSV-R destroyed in the Condor, four others didn't make it out of Foxden. Tasker wondered if AO Aerie was as heavily mined, but thanked God that the Andereans hadn't defended their mines and booby traps. It could have been a mess that would have slowed the assault on the capital, and speed was what made the difference in this fight.

Ibn Ander just couldn't react to all the reports of coalition operations from Padang to Dumai to Rengat to all around his capital. Striking at night in multiple undefended places and jumping over the heavily defended ports and airfields, the coalition had overwhelmed the Caliphate's forces.

In TF Green's Forward Command Post, the video continued. The 1st Marine Expeditionary Brigade, reinforced with the 2nd Stryker BCT from TF Green seemed to appear on the periphery of Pekanbaru's northern suburbs. Marines and Soldiers swept into the city overcoming resistance with an array of standoff strike systems that either eliminated Anderian weapons or neutralized the defenders. The 1st Brigade took some time coming out of Foxden, but they didn't

have as far to go as 1st Marine Expeditionary Brigade so they were able to begin their penetration of the capital in conjunction with the Marines. By the time General Dumai called for a ceasefire the Government House was surrounded. At dawn special operations teams emerged with Ibn Ander on a stretcher—drugged, apparently in a suicide attempt.

When the last shots played over the big screen Odermann half expected to see the credits roll. TF Green and the entire coalition was far from done, but GOI forces were already en route to replace them. With any luck the coalition would pull most of its combat forces out of Sumatra in less than a week.

Major General Tasker slapped his knees and stood up at the end of the video. Looking around the portable inflatable shelter that housed his command post, he said, "Warriors all! You've done your jobs incredibly well. Operation Thunderstorm will be one for the history books, my friends. It showcased our arsenal and expeditionary prowess, no question about that. More importantly, and I know you men and women are tired of me saying it, this operation proved our Soldiers and our warrior spirit are second to none! I'm so proud of all of them and you…," he tapered off his eyes wet with tears and his voice growing hoarse.

Major King flinched and touched his Bluetooth earpiece, getting a serious look on his face. No one seemed to notice in the hubbub until King's voice rose above the clamor, amplified by the flat screen speakers.

"Sir," King began, looking a bit ashen. "There's been an earthquake! Tsunami alert, sir, for the northeast shore. Pacific Command wants us to be ready to assist…."

Boots on the ground is a somewhat overused term, but its meaning is timeless. From Fehrenbach's quote to Patton's admonition that humans win wars, this concept concentrates on this theme and its prime executors Soldiers and Marines. War is never pleasant nor is it a casual activity played occasionally. War is serious business that requires dedicated well-trained and educated professionals to execute. This concept on the human dimension makes that point in all the domains described in the foregoing chapters.

The events described in each of the vignettes serve to emphasize selected points in its respective chapters. As such, they are not chronological, nor are they completely consistent with the exercise battle fought in the 2004 Sea Viking Experiment. The apparent ease with which the coalition overcomes Ibn Ander does not suggest that future combat operations will be easy. The Anderian forces may seem inept in these accounts, but the coalition success derives from *not* engaging Anderian strengths, from utilizing deception, and from entering the Caliphate in unexpected ways.

The Battle of Pekanbaru and the taking of the Sumatra Anderian Caliphate should never have to happen, but if the present is any predictor of the future, the U.S. Army needs to prepare for a world of persistent conflict. The Army must begin today to build the future TF Green and the magnificent leaders depicted in this fictional account. To do less would be a major disservice to our country.

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Appendix A
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This section contains no entries.

Section II
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Glossary

Section I
Abbreviations

AAR	after action review
AO	area of operations
AR	Army regulation
ARFORGEN	Army force generation
ARI	Army Research Institute
ARL	U.S. Army Research Laboratory
ATLDP	Army Training and Leader Development Panel
BCE	before the Common Era
BCT	brigade combat team
BNCOC	basic noncommissioned officer course
C2	command and control
CJTF	combined joint task force
COIN	counterinsurgency
COSR	combat and operational stress responses
CTC	combat training center
DL	distributed learning
DOD	Department of Defense
DOTMLPF	doctrine, organization, training, materiel, leadership and education, personnel, and facilities
FM	field manual
FSV	full spectrum vehicle
FSV-G	full spectrum vehicle-gun
FSV-R	full spectrum vehicle-reconnaissance
GEL	guided experiential learning
GOI	Government of Indonesia
HPI	human performance improvement
HPT	human performance technology
IET	initial entry training
IMT	initial military training
IT	information technology
JIM	joint, interagency, and multinational
JOE	joint operational environment
MNC	multinational corporation
MOS	military occupational specialty
MTT	mobile training team
MWR	morale, welfare, and recreation
NCO	noncommissioned officer
NCOES	Noncommissioned Officer Education System
OE	operational environment
OEF	Operation Enduring Freedom
OES	Officer Education System

OIF	Operation Iraqi Freedom
OPFOR	opposing forces
OPTEMPO	operational tempo
Pam	pamphlet
ROTC	Reserve Officer's Training Corps
RSTA	reconnaissance, surveillance, and target acquisition
S3	operations and training officer
S&T	science and technology
SEAL	sea-air-land team
TF	task force
TLE	training and leader education
TRADOC	U. S. Army Training and Doctrine Command
TRP	target reference point
TTP	tactics, techniques, and procedures
UK	United Kingdom
UN	United Nations
U.S.	United States
USMA	U.S. Military Academy

Section II
Terms

360-degree appraisal
The formal evaluation of an officer's performance by superiors, peers, and subordinates.

adaptive decisionmaking
Leadership actions based on an assessment of the situation as viewed through the eyes of subordinates armed with the commander's intent and support.

build option
A recruiting strategy for that sector of the population that does not initially meet the Army's expectation, yet has the desire to serve, the Army will need to implement processes that shape these candidates into fully qualified Soldiers.

burnout
The emotional exhaustion, interpersonal insensitivity, and a diminished sense of personal accomplishment that occurs after prolonged exposure to stress.

buy option
A recruiting strategy that focuses on offering incentives to encourage highly desirable potential candidates to enlist. This can either be an offer of money—an approach already becoming prohibitively expensive—or an offer of incentives of intangible value.

civil support
Army forces combine offensive, defensive, and stability or civil support operations simultaneously as part of an interdependent joint force to seize, retain, and exploit the initiative to achieve decisive results.

cognition
The processing of information, applying knowledge and changing preferences.

cohesion
The bonding together of members of an organization/unit in such a way as to sustain their will and commitment to each other, their unit, and the mission. Cohesion has two distinct forms - primary and secondary cohesion. (See primary and secondary cohesion.)

combat and operational stress (COS)
Developed from three contributing factors—enemy action, physical environment and interpersonal conflicts. COS can occur in a deployed or non-deployed environment. Many stressors in a combat situation are due to deliberate enemy actions aimed at killing, wounding, or demoralizing Soldiers and allies. Other stressors are due to the natural environment, such as intense heat or cold, humidity, or poor air quality. Others are due to leaders' own calculated or miscalculated choices (for example, decisions about unit strength, maneuver, the time of the attack, and plans for medical and logistical support). Finally, some of the most potent stressors are interpersonal in nature and can be due to conflict in the unit or on the home front.

combat and operational stress reactions (COSR)
The expected, predictable, emotional, cognitive, physical, and/or behavioral reactions of Service members who exposed to stressful events in combat or military operations other than war. Reactions can be adaptive or maladaptive. Stressors, when combines with effective leadership and good peer relationships may lead to adaptive stress reactions, which enhance individual and unit performance. Maladaptive stress reactions range from minor breaches of unit orders or regulations to serious violations of the Uniform Code of Military Justice and the Law of Land Warfare. Misconduct stress behaviors are most likely to occur in poorly trained undisciplined Soldiers, however good and heroic, under extreme combat stress may also engage in misconduct.

domestic environment
The composite of the physical conditions, demographics, and the internal political, economic, and social influences that shape the U.S. domestic policy and national security strategy. The domestic environment has a direct impact on the human capital available to the U.S. Army. Appreciation of the implications the domestic environment has on the physical, cognitive, and moral components of the human dimension is essential.

full spectrum operations
Army forces combine offensive, defensive, and stability or civil support operations simultaneously as part of an interdependent joint force to seize, retain, and exploit the initiative to achieve decisive results. (FM 3-0)

general adaptation syndrome
General adaptation syndrome is related to physical fitness and describes three basic stages of responses to stress: (a) the alarm stage, involving the initial shock of the stimulus on the system, (b) the resistance stage, involving the adaptation to the stimulus by the system, and (c) the exhaustion stage, in that repairs are inadequate, and a decrease in system function results. The foundation of periodic training is keeping ones body in the resistance stage without ever going into the exhaustion stage. By adhering to cyclic training the body has adequate time to recover from significant stress before additional training is undertaken. (Sports periodization, Wikipedia)

globalization
Refers in general to the worldwide integration of humanity and the compression of both the temporal and spatial dimensions of planet-wide human interaction. It includes the increasing economic integration and interdependence of countries.

Homeland Defense
The protection of U.S. sovereignty, territory, domestic population, and critical defense infrastructure against external threats and aggression, or other threats as directed by the President.

human dimension
That which encompasses the moral, cognitive, and physical components of Soldier, leader, and organizational development and performance essential to raise, prepare, and employ the Army in full spectrum operations.

cognitive component
Within the human dimension, what a Soldier must know and understand in order to perform essential tasks and functions. The cognitive domain includes cognition and learning.

kinesiology
The scientific study of man's movement and the movements of implements or equipment that he might use in exercise, sport or other forms of physical activity. The use of muscle testing to identify imbalances in the body's structural, chemical, emotional, or other energy, to establish the body's priority healing needs, and to evaluate energy changes brought about by a broad spectrum of both manual and non-manual therapeutic procedures.

learning
The acquisition and development of memories and behaviors, including skills, knowledge, understanding, values, and wisdom. It is the goal of education, and the product of experience.

moral component
In relation to the human dimension, it consists of three elements; warrior spirit element, moral-ethical development, and socio-cultural awareness.

moral-ethical
In relation to the human dimension, Soldiers aligning individual and professional values in such a way that their constantly evolving personal set of values, beliefs and behaviors are internally consistent with the ethical norms of the profession.

operational environment
The composite of the conditions, circumstances, and influences that affect the employment of capabilities and bear on the decisions of the commander. It encompasses physical areas and factors (of the air, land, maritime, and space domains) and the information environment. Included within these are the adversary, friendly, and neutral systems that are relevant to a specific joint operation. (Joint Publication 3.0).

periodization
The varying or cycling of training specificity, intensity, and volume to achieve peak levels of conditioning. An organized approach to training that involves progressive cycling of various aspects of a training program during a specific period of time. (Sport periodization, Wikipedia)

persistent conflict
A period of protracted confrontation among state, non-state and individual actors who will increasingly use violence as a means of achieving their political and ideological objectives.

physical component
Traditional aspects of physical fitness such as strength, endurance, flexibility, and coordination, along with holistic fitness, an approach that considers mental and medical contributions to physical performance. (Human Dimension concept).

post traumatic stress disorder
Develops after a terrifying ordeal that involved physical harm or the threat of physical harm. The person who develops post traumatic stress may have been the one who was harmed, the harm may have happened to a loved one, or the person may have witnessed a harmful event that happened to loved ones or strangers. First brought to public attention in relation to war veterans, but it can result from a variety of traumatic incidents, such as mugging, rape, torture, kidnapping, child abuse, car accidents, train wrecks, plane crashes, bombings, or natural disasters such as floods or earthquakes, or being held captive.

primary cohesion
The cohesion that exists at the Soldier level. Primary cohesion has two elements, horizontal and vertical cohesion. Horizontal cohesion involves building a sense of mutual trust between Soldiers in small units (platoon, squad) and among peer leaders (officers and NCOs) through shared experiences. Vertical cohesion is bonding between leaders and subordinates.

secondary cohesion
The cohesion created by both organizational and institutional bonding. Organizational bonding occurs at the next higher organization-company/battalion or regimental/brigade level, while institutional bonding is the relationship of the Soldier to the Army. Task cohesion refers to the shared commitment among members to achieving a goal that requires the collective efforts of the group.

socio-cultural awareness
In relation to the human dimension, a requisite that Soldiers understand and be cognizant of how their actions have different meanings to different environments of the local and global audiences

and to understand the consequences of their actions within these environments. Conversely, cultural awareness will allow the Soldier to better interpret and anticipate the behavior—and thus the intentions—of the local populace.

Soldier life cycle
Begins with the Army's efforts to recruit quality people followed by initial training, education and acculturation; unit integration and training; employment; redeployment and reset/train. It is cyclic in nature, and includes the reintegration of Soldiers into Army and joint organizations upon redeployment and back into society after the completion of Army service.

strategic corporal
The notion that leadership in complex, rapidly evolving mission environments devolves lower and lower down the chain of command to better exploit time-critical information into the decisionmaking process, ultimately landing on the corporal, the lowest ranking noncommissioned officer, typically commanding a squad. The term was coined by Gen Charles C. Krulak in the title of an article in Marines Magazine about the Three Block War.

stress
A combination of the physical and emotional responses of the human brain and body to physical conditions and external events.

warrior spirit
In relation to human dimension, having a strong professional military ethic and character that sustains the will to fight and provides the necessary motivation to persevere in the face of severe hardships and the threat of severe injury or death in battle.

Section III
Special Abbreviation and Terms

This section contains no entries.

Endnotes

[1] LTG (USMC, Retired) Paul K. Van Riper, "Information Superiority," *Marine Corps Gazette* (June 1997), p. 54.
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