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elements of genius to the formal and informal learning processes in the Air Force. In the review of formal learning, the major professional military education programs, such as Squadron Officers School, Air Command and Staff College, and Air War College are reviewed. Additionally, the acquisition professional development program is assessed for its contribution to Clausewitzian genius. Experience, self-directed study, and mentoring fall under the rubric of informal learning. The Air Force counseling program and the non-commissioned officer mentoring culture is evaluated. Recent literature on the personal and professional development of employees is also reviewed. Finally, individuals from the warfighter, developer, and industry communities are interviewed for their thoughts on the strengths and weaknesses of the acquisition officer.

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BRIDGING THE GAP BETWEEN WARFIGHTERS AND INDUSTRY:  
THE PROFESSIONAL AND PERSONAL DEVELOPMENT OF THE  
ACQUISITION OFFICER

BY

MAJOR SHANNON M. SULLIVAN

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## **Disclaimer**

The conclusions and opinions expressed in this document are those of the author. They do not reflect the official position of the US Government, Department of Defense, the United States Air Force, or Air University.

### *About The Author*

Major Shannon M. Sullivan was commissioned through the Reserve Officer Training Corps, Oregon State University in 1983. After graduating from undergraduate space training in 1984, he participated in the construction of Falcon AFS and the operation of the Global Positioning System's Master Control Station. From the fall of 1987 to the summer of 1988 he trained for and competed in the Olympic Trials, placing fourth in the decathlon. He was subsequently assigned to the Air Force Academy as an instructor, coach, and director of fitness, testing, and evaluation. In 1992, he was assigned to the Airspace and Communications Program Office at Hanscom AFB, and later went on to lead a team in creating the Air Force's prototype battlelab. Major Sullivan has a bachelor's degree in mechanical engineering from Oregon State University and a Master's of Business Administration from Webster University. He graduated from Air Command and Staff College in June 1997, and received a Master's of Airpower Art and Science from the School of Advanced Airpower Studies in June 1998. In July 1998, Major Sullivan assumed command of detachment 1, 46<sup>th</sup> Test Wing, Hanscom AFB, MA.

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## *Abstract*

This study analyzes the professional and personal development of acquisition officers and their ability to cope with a rapidly changing environment. The paper compares Carl von Clausewitz's elements of genius to the formal and informal learning processes in the Air Force. In the review of formal learning, the major professional military education programs, such as Squadron Officers School, Air Command and Staff College, and Air War College are reviewed. Additionally, the acquisition professional development program is assessed for its contribution to Clausewitzian genius. Experience, self-directed study, and mentoring fall under the rubric of informal learning. The Air Force counseling program and the non-commissioned officer mentoring culture is evaluated. Recent literature on the personal and professional development of employees is also reviewed. Finally, individuals from the warfighter, developer, and industry communities are interviewed for their thoughts on the strengths and weaknesses of the acquisition officer.

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## Chapter 1

### The Trinity

*“Emphasis on creating an Air Force environment that fosters responsiveness and innovation and rewards adaptability and agility will be crucial as we move into the early part of the next century.”*

*- Global Engagement*

### Challenges

An insidious and pervasive disease is gripping the acquisition community – a bureaucratic and isolationist mindset. The fall of the Berlin Wall, reduced budgets, revolutions in technology, and a changing strategic environment are forcing change upon the military. Warfighters, developers, and industry no longer have the resources or time to maintain their separate fiefdoms. Instead, the efficient and effective fielding of capability demands cooperation; each team member must contribute to the value stream if they are to survive. The developer’s job is to clearly understand the warfighter’s requirements, contractually convey those requirements to industry, and manipulate the acquisition machine to rapidly field the system. In short, they must develop a knowledge base of all three communities, if they are to effectively bridge the gap between warfighters and industry.

### Problem Statement

Research Question. This paper will answer the question, “Is the Air Force developing and empowering acquisition officers to effectively bridge the gap between warfighters and industry?”

Relevance. The answer is vital to all three communities. With the proliferation of technology and asymmetries in will, the warfighter no longer has the luxury to wait for expensive, robust systems to gradually be implemented in the field. Industry must also be in-tune to the answer, because a teaming arrangement involving continuous incremental improvements may be the new format for acquisition. Finally, the lifeblood of the military acquirer is uncertain. If the answer to the research question is that there is no need for a military bridge between warfighter and industry, then acquisition should be privatized. Equally important, if the military developer cannot fulfill the “bridging” mission, then they should be replaced. The Air Force Secretariat for Acquisition and Air Force Materiel Command should pay particular attention. Only through the cultivation of talented officers will the military acquisition system adapt and survive.

Limitations. This paper is not intended to be the definitive answer on acquisition officer development, but an investigation into possible weaknesses. Its chief limitation is the depth of analysis. In particular, a small sampling of interviewees were questioned, and the schools and initiatives received a cursory review. Additionally, the primary focus was on military officers and not civil servants. The acquisition officers questioned typically came from a limited background of space or command and control (C2) systems, and from program management duties.

Definitions and Assumptions. Throughout this paper, the term “acquisition officer” is frequently used. In a broad sense, this could refer to any of the eleven acquisition specialty areas. For the purposes of this study, the term is generally intended for the program manager-leadership roles. There were two major assumptions upon which this paper is built. First, the small sample size, and relatively narrow area of expertise, are representative of the acquisition officer corps. Second, it was assumed that dealing with uncertainty, chance, and friction is relevant to both the battlefield and acquisition settings.

## **Background**

The system of acquisition is composed of three components: process, organization, and people. Though the acquisition system has valiantly resisted change,

reform measures in Congress and within the Department of Defense (DoD) are chipping away at the intransigence. Much of the Air Force effort has been focused on creating flexible processes and organizations to facilitate fielding capability rapidly – with some success. The “people” component has also had its share of reform, but efforts have been partially misdirected. Regrettably, this third component of the acquisition trinity is critical in facilitating the effectiveness of the first two components. Innovative and adaptable processes and organizations are meaningless without innovative and adaptable people at their helm. The difficulty is in determining the necessary attributes for the acquirer and how to foster his development.

The asymmetries in willpower, objectives, and capabilities between the US and its adversaries are challenging the conventional application of military forces. Carl von Clausewitz, a master of military theory, realized that the only way to truly cope with this nonlinear environment was through the application of genius in the commander. In this paper, we will extract Clausewitz’s thoughts on overcoming uncertainty, chance, and friction on the battlefield. We will then determine if they are applicable to nonlinear conditions in other operations, such as acquisition. If they are, we will compare them to the current development of acquisition officers.

## **Methodology**

Using documents such as *Global Engagement* and reports from the Air Force Scientific Advisory Board, we will assess the uncertainty, chance, and friction in the strategic environment and its effects on acquisition. We will also review military theory to determine Clausewitz’s applicability to this environment. If Clausewitz’s elements of genius are valid, we will compare them to acquisition legislation, the acquisition professional development program, professional military education systems, and new education initiatives.

Fifteen civilians and officers from the warfighter, industry, and acquisition communities will also be interviewed for their views on the strengths and weaknesses of developers and their professional cultivation. The interviews were conducted in a free-flowing format with no standardized questions. The interviewees are as follows:

1. Capt Michael Block – Program Manager, Command and Control Unified Battlespace Environment’s Innovation Cell.
2. Brig Gen John Clay – Vice Commander, Headquarters, Space and Missile Systems Center.
3. Lt Jason Dyer – Financial Officer, special access program.
4. Lt Col Kenneth Francois – Program Manager, special access program.
5. Lt Gen (ret) Charles “Ed” Franklin – Vice President, Program and Mission Success, Sanders Corp., and former Commander, Electronic Systems Center.
6. Gen Richard Hawley – Commander, Air Combat Command
7. Mr. James Henderson – President, Analytical Systems Engineering Corporation.
8. Maj Jay Kreighbaum – Student, School of Advanced Airpower Studies. Specialty: F-15E Flight Weapons Officer
9. Capt Joshua Kutrieb – Program Manager, special access program.
10. Maj David Miller – Student, School of Advanced Airpower Studies. Specialty: Test Pilot.
11. Lt Gen George Muellner – Principal Deputy, Office of the Assistant Secretary of the Air Force for Acquisition
12. Mr. Robert Nesbit – Vice President, Center for Integrated Intelligence Systems, MITRE Corporation.
13. Brig Gen Wilbert “Doug” Pearson – Director of Operations, Headquarters, Air Force Materiel Command.
14. Maj William Spacy – Student, School of Advanced Airpower Studies. Specialty: C-130 Pilot, Program Manager.
15. Lt Col Anthony Weigand – Student, School of Advanced Airpower Studies. Specialty: Program Manager.

Finally, military and civilian literature on the professional and personnel development of individuals will be reviewed and compared to Clausewitz’s elements.

## **Summary of Findings**

The Air Force has devoted considerable thought and effort into all the components of the trinity. Though this paper did not attempt to evaluate the effectiveness of organization and process reforms, literature and interviewees clearly indicate they are

linked to the third component – people. The “people” reform has been attempted in earnest, but it appears that is only doing part of the job in meeting the criteria of Clausewitz.

The elements of Clausewitzian genius are as follows:

1. Experience – personal performance and experimentation in a specialty.
2. Study – academic exploration into the theory, influences, and history of a chosen field.
3. Logic – the application of sound judgement given the environment, process, constraints, and restraints.
4. Intuition – insightful, creative, and innovative thought.
5. Initiative – boldness and courage to act
6. Mentoring – fostering the professional and personal development of subordinates.

Through the mentoring of effective experience and study, the attributes of logic, intuition, and initiative are fostered. Though some individuals are innately gifted in these areas, all can benefit from refining the attributes.

Clausewitz did not develop the concept of genius alone. The era of the Enlightenment, which produced works such as Adam Smith’s *Wealth of Nations*, had an influence on Clausewitz’s thoughts. Enlightenment followers believed that the power of the individual played a major role in overcoming his environment. Clausewitz, being a military officer, applied this concept of the individual to the battlefield commander. Through the attributes of genius, the commander could adapt and overcome the uncertainty, chance, and friction of war. These same attributes also have the potential of overcoming the fog and friction in other settings, namely, acquisition.

The acquisition professional development program (APDP) was reviewed to determine if it met the elements of genius. Likewise, the major professional military education (PME) programs and schools were evaluated. On a whole, the APDP and PME received mixed marks. APDP was effective in specialty training and developing a logical approach to functioning in the acquisition system. It failed in providing a broader acquisition or operational perspective, and it did not encourage intuition, initiative, or mentoring. PME’s strength resided in teaching a larger operational view, but it was also deficient in intuition, initiative, and mentoring.

Informal learning through experience, self-study, and mentoring was assessed to determine if it complimented the missing links in formal learning. Unfortunately, it too was found lacking. On the positive side, the Air Force counseling program is attempting to encourage junior officer development through mandatory annual meetings between supervisors and subordinates. Unfortunately, it addresses a very small slice of the mentoring pie. Conspicuously missing is the encouragement of personal and professional development through self-study, innovation, and experimentation. Instead, officers found they were being trained to turn the acquisition “crank” without understanding why it was important or how they could make the system function more effectively.

## Chapter 2

### Clausewitz On Acquisition

*“Military genius...does not consist in a single appropriate gift...while other qualities of mind or temperament are wanting...Genius consists in a harmonious combination of elements in which one or the other must predominate, but none may be in conflict with the rest.*

Carl von Clausewitz  
*On War*

### From the Battlefield to Acquisition

Dramatic and continual changes in the strategic and fiscal environment demand that acquisition officers be more creative, adaptable, motivated, and skilled than ever before. As Clausewitz predicted, the nature of warfare – a contest of wills - remains unchanged, but the nature of each conflict will vary with the intensity of a nation’s willpower.<sup>1</sup> Asymmetries in the objectives, wills, and capabilities of nations are requiring warfighters and developers to reassess how future wars will be conducted. These asymmetries are translating into nonlinear engagements where conventional inputs are producing unpredictable results.

*Global Engagement*, an Air Force paper addressing future goals and challenges, describes many of the issues facing the Air Force:<sup>2</sup>

1. Unpredictable opponents posing unknown challenges
2. Our homeland vulnerable to terrorist attack
3. Multiple humanitarian air missions
4. The spread of nuclear, chemical, and biological weapons
5. Likely conflicts occurring in cities, jungles, and mountains

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<sup>1</sup> Carl von Clausewitz, *On War* (Princeton, NJ: Princeton University Press, 1984), 75, 81.

<sup>2</sup> *Global Engagement: A Vision for the 21st Century Air Force*, 1996, 1.

6. Increasing need to project power from the United States
7. Information as a weapon and a target.

The Air Force Scientific Advisory Board (SAB) further warned Air Force (AF) leaders that to cope with these issues, the AF needed organizational and process reform – namely, flat organizations, innovation incentives, and more flexibility in the funding and requirements processes.<sup>3</sup> Further complicating the military equation, new technologies, which once were the domain of superpowers, are now proliferating across the globe. Access to state-of-the-art information systems are providing intelligence, and command and control capabilities to first and third world countries, alike. To supply warfighters with the latest systems, acquisition officers are faced with constricting regulations, bureaucratic indifference, and an increasing dependency on commercial technologies. The challenge to the US operator and developer is how to rapidly integrate technology and adapt organizations and doctrine to improve capability.

Carl von Clausewitz, offered valuable insights into preparing battlefield commanders for the friction, chance, and uncertainty of war. The foundation for these insights came from the general philosophy of the Enlightenment. Enlightenment scholars, whether social, political, economic, or military, appreciated the central role of the individual. By embracing this role, and adapting to the changing environment, individuals could succeed where those who clung to rigid structure would fail. Though Clausewitz wrote about overcoming chaos on the battlefield, he recognized the roots of chaos were grounded in policy and human interaction. These same forces exist in most human endeavors, to include acquisition. The elements of genius necessary to embrace the chaos on the battlefield are therefore equally effective in manipulating the policy, process, and human interaction in the program office.

## **The Acquisition Environment**

The acquisition system is comprised of three elements: process, organization, and people. New federal regulations, acquisition reform, reorganization, lightening bolts,<sup>4</sup>

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<sup>3</sup> Air Force Scientific Advisory Board/Ad Hoc Committee. *Information Architectures that Enhance Operational Capability in Peacetime and Wartime*, February 1994, 6.0.

<sup>4</sup> The lightening bolt initiatives were released in May 1995 by Office of the Assistant Secretary of Defense for Acquisition in an attempt to streamline the acquisition process.

and other incentive measures are attempting to make the acquisition *process* more adaptable and flexible. Insightful *organizational* reforms are also being implemented to better align new systems in the broader context of their warfighting mission. However, the third element of the acquisition triad, *people*, goes largely unnoticed. Even the SAB failed to address the issue. In their *C4 Vision of Aerospace Command and Control For the 21st Century* 96, they discussed the mechanics of the acquisition process, the challenges facing users and developers, and the impact of new technology. Conspicuously absent, though, was an assessment of how to improve the adaptability of acquisition personnel.

Criticisms of the acquisition community abound; they take too long, spend too much, and deliver inadequate and unsupportable systems to the field. While these comments may be exaggerated, or focus on isolated examples, their foundation lies in a modicum of truth. In assessing the challenges facing the acquisition community, we must determine why there is a need for military acquirers, what is the impact of technology and the dependence on industry, what are the effects of new legislation and regulations, and what are the issues with the current bureaucratic system.

### **The Officer**

Industry's main objective is to maximize profit - the warfighter's is to maximize capability. Between them stands a morass of legislation and oversight dictating how government funds will be spent and how systems will be developed, fielded, and supported. The warfighter does not have the time to become proficient in regulations and still maintain warfighting currency. Likewise, it is not reasonable or legal to demand that industry police itself. The job falls to the acquirer, who although he or she is a part of the warfighting team, has specialized in dealing with the research and development of systems.

General Richard Hawley, commander of Air Combat Command (ACC), suggested that the purpose of the military acquisition officer is to "know the user's requirements and translate those requirements into terms industry can understand."<sup>5</sup> Brigadier General John Clay, vice commander of Air Force Space and Missile Systems

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<sup>5</sup> Gen Richard Hawley, Langley AFB, VA, interviewed by author, 3 February 1996.

Center, added, “We can not civilianize acquisition, because the military provides a unique role of bringing the warfighting and industry communities together.”<sup>6</sup>

## **The Process**

Test pilot, Major David Miller, relates that, “The acquisition process retards innovation, flexibility, and prototyping. It’s also incapable of keeping up with the rapid development of commercial hardware and software.” The AF once fielded aircraft like the F-100, F-102, and F-104 within a few years. “Now, it takes five years just to field a modification.”<sup>7</sup>

The AF SAB supports Maj Miller’s contention stating the acquisition strategy, supporting funding, and incentive structure have not changed to meet the demands of warfighters and the new strategic environment of flexible missions, coalitions, and technology advances.<sup>8</sup> They continue, “The increasing vulnerability to information warfare as adversaries exploit modern information systems technology is a major threat to success unless the Air Force can rapidly adapt to state-of-the-art changes in technology of information systems”<sup>9</sup>

One only has to look at a few of the recent congressional actions to appreciate the confusion in acquisition policy and the wary attitude for experimentation and innovation:

1. The Packard Commission, 1986
2. The Acquisition Workforce Improvement Act of 1990
3. The Chief Financial Officers Act of 1990
4. The Government Performance and Results Act of 1993
5. The Federal Acquisition Streamlining Act of 1994
6. The Paperwork Reduction Act of 1995
7. Information Technology Management Reformation Act of 1996
8. Federal Acquisition Reform Act of 1996

With each change in the law comes a proliferation of directive and policy changes. While these changes are targeted at improving the system, the instability and uncertainty they generate can only retard innovation and improvement in the short term. Robert Nesbit, vice president of the federally funded research and development center,

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<sup>6</sup> Brig Gen John Clay, Los Angeles AFB, CA, interviewed by author, 7 January 1998.

<sup>7</sup> Maj Dave Miller, Maxwell AFB, AL, interviewed by author, 22 January 1998.

<sup>8</sup> SAB Ad Hoc, 6.0.

<sup>9</sup> SAB Ad Hoc, 5.5.2.

MITRE, stated, “The rules are complicated, obscure, and contradictory. DARPA [Defense Advanced Research Project Agency] is much faster at development because they have an exemption from the FAR [Federal Acquisition Regulations].”<sup>10</sup> President of Analytical Systems Engineering Corporation, James Henderson, added that, “COTS (commercial off-the-shelf), spiral development, and rapid personnel turnover prevents officers from seeing how an entire program is executed.”<sup>11</sup>

The highly structured process of the FAR requires a great deal of care and feeding from an equally bureaucratic organization. To keep the machine healthy, people must behave in a predictable and methodical pattern. In his book, *Images of Organization*, Gareth Morgan uses analogies to describe organizations. A bureaucracy operates as if it were a machine; it is effective in a stable environment, reproducing an easy task, and outputting a reliable regular product. Unfortunately, Morgan warns that the machine is poor at adapting, mindless, dehumanizing, and can produce unanticipated results when personal incentives over take organizational incentives. The bureaucracy, like the machine, fits humans into an organization, rather than building the organization around people to leverage their strengths.<sup>12</sup>

Not only do bureaucracies produce inflexible, stovepiped solutions, but they also incentivize developers to maintain schedule and cost in spite of the greater needs of the Air Force. As a warfighter in charge of requirements at ACC, Major Jay Kreighbaum related that he “often felt isolated by industry and acquirers, because the acquisition community was constantly eroding requirements...to make up for losses in schedule and to control costs.”<sup>13</sup><sup>14</sup> In addition, he was further alienated when traveling on temporary

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<sup>10</sup> Robert Nesbit, Burlington, MA, interviewed by author, 6 January 1998.

<sup>11</sup> James Henderson, Burlington, MA, interviewed by author, 30 December 1997.

<sup>12</sup> Gareth Morgan, *Images of Organization* (Newbury Park, CA: Sage Publications, 1986), 24-38.

<sup>13</sup> Maj Jay Kreighbaum, Maxwell AFB, AL, interviewed by the author, 21 January 1998.

duty (TDY). “The SPO personnel were required to dress in suits while attending meetings, while I was the only one in uniform.”<sup>15</sup>

In his book, *Pentagon Wars*, Colonel (ret) James Burton describes the corruption caused by maintaining the bureaucratic momentum. From the Navy’s A-12, to the Army’s Bradley Fighting Vehicle, to the Air Force’s B-1, questionable decisions and actions were taken, because the acquisition system incentivizes holding schedule and cost constant, over maintaining performance.<sup>16</sup> The SAB stated that it is rare when a program manager has the ability and funds to alter a system’s development to provide greater capability to the user.<sup>17</sup> They insisted that there is no incentive for program managers to reach across program lines to establish better interoperability, regardless of the benefit to the user.<sup>18</sup> This is due, in part, to an acquisition process that develops requirements, funding, and advocacy for individual systems rather than entire mission areas.

The warfighting team of users and developers face many common challenges: overcoming friction, dealing with uncertainty, and adapting to change. To deal with these nonlinear conditions, both communities must become more flexible and innovative in their operations. While changing doctrine, processes, organizations, and equipment is necessary, the quintessential element continues to be the individual. Over 150 years ago, Clausewitz recognized that to be successful in this uncertain environment, an individual required a degree of genius.

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<sup>14</sup> Although Maj Kreighbaum describes a valid problem, in his review of this paper, Gen Franklin indicated that other factors maybe at work. Looking at Air Force acquisition as a whole, requirements are often reduced in one program so that more valuable requirements can be added or maintained in another program. The process is one of give and take within a fixed budget.

<sup>15</sup> Ibid.

<sup>16</sup> James G. Burton, *Pentagon Wars*, (Annapolis, MD: Naval Institute Press, 1993), 32-35, 222-224, 234-235.

<sup>17</sup> SAB Ad Hoc, 6.0.

## The “Genius” of Clausewitz

While Clausewitz’s model for the consummate genius may have been Napoleon, he clearly appreciated that many of the qualities of genius could be fostered in subordinate officers. To understand Clausewitzian genius, we must first look at how he viewed friction, chance, and uncertainty. Next, we will discuss the ability of genius to overcome these obstacles and how to develop “genius-type” attributes in others. Finally, using the Clausewitzian approach as a foundation, we can extract his criteria to evaluate the Air Force’s process for developing acquisition officers.

## The Nature of Warfare

Airpower advocates have long had trouble with the concept of the nature of warfare. All too often, they forget that war is not a battle of technology and assets, but a battle of wills. Clausewitz defines the nature of war as an act to compel others to do our will, never occurring in isolation, a game of chance and uncertainty, and a continuation of policy.<sup>19</sup> In *On War*, Clausewitz further exhorts, “The stronger motive increases willpower, and willpower, as we know, is always both an element in and the product of strength.”<sup>20</sup> Additionally, Clausewitz was convinced that the political process was at the heart of military operations. “Policy is the guiding intelligence and war only the instrument.”<sup>21</sup> As political objectives changed, so would the military objectives and the means to carry them out...all this added to the uncertainty and friction between two opposing wills.

Why is the nature of warfare important to the development process? Like war, acquisition is also a slave to policy and the fog and friction it produces. Clausewitz’s recommendations for navigating through this sea of chaos may be equally valuable, whether fighting wars or developing systems.

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<sup>18</sup> Ibid., 4.4.2.2.1.1.

<sup>19</sup> Clausewitz, 75-89.

<sup>20</sup> Ibid., 85.

<sup>21</sup> Ibid., 607.

## Clausewitz and Nonlinearity

Nonlinearity suggests that it may be difficult, if not impossible, to determine the results of an action. If a system is linear, an output can be determined, when given a definitive input. Antithetically, a non-linear system's inputs create an unpredictable output. The battlefield is filled with nonlinear sources, such as friction, inaccurate feedback loops, the psychology associated with human interactions, and the basic decision making process.<sup>22</sup>

Alan Beyerchen describes Clausewitz as a nonlinearist, because Clausewitz insisted the effects of uncertainty, chance, and friction would drive war away from its absolute form.<sup>23</sup> Nonlinearity creates distortions in "perceptions of what is central and what is marginal -- a distortion, Clausewitz as a realist, understands."<sup>24</sup> Since there was no vocabulary for nonlinear systems 150 years ago, Clausewitz used uncertainty, chance, and friction.<sup>25</sup>

Clausewitz had come to understand the true nature of warfare, but the solution to overcoming the elements of uncertainty and chance lay beyond the battlefield. The farther we move down the scale of conflict from major war towards military operations other-than-war (MOOTW), the more unpredictable the system becomes. In low intensity conflicts - where major asymmetries in objectives, capabilities, and will exist - the acts of a single soldier can dramatically affect the outcome of an operation. Conversely, in a major war, symmetrical influences smooth the nonlinear curve. This does not imply that friction and uncertainty are absent in total war, or the influences of the commander are not important; it merely suggests that the magnitude and scope of total war tends to minimize individual people or events.

Like his operational brethren, the acquisition officer must be prepared to rapidly adapt to the uncertainties of a complex and ever-changing environment. While the physical aspect of warfare is absent, acquisition has its share of friction, uncertainty, and

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<sup>22</sup> Maj David Nichols and Maj Todo Tagarev, "What Does Chaos Theory Mean for Warfare?" *Airpower Journal*, Fall 1994.

<sup>23</sup> Alan Beyerchen, "Clausewitz, Nonlinearity, and Unpredictability of War," *International Security* 17 (1992/1993): 64, 71.

<sup>24</sup> *Ibid.*, 64.

<sup>25</sup> *Ibid.*, 86.

chance. The challenge to both warfighter and developer is not in overcoming the resulting nonlinearity, but embracing it.

### **Origins of Genius**

Esprit Sytematique, the age of the Enlightenment, most likely played a major role in the direction of Clausewitz's thoughts. "On War, like Montesqueieu's *Esprit des Lois* and Adam Smith's *The Wealth of Nations*, is...a philosophic inquiry into the nature of war; like the Enlightenment *Philosophes*, Clausewitz established war as philosophic inquiry, that is, a body of knowledge in which principles are formulated, developed and founded."<sup>26</sup> Cassier, in his *The Philosophy of the Enlightenment*, written in 1932, described the Enlightenment, "Instead of confining philosophy within the limits of a systematic doctrinal structure, instead of tying it to definite, immutable axioms and deduction from them, the Enlightenment wants philosophy to move freely and in its immanent activity to discover the fundamental forms of reality, the form of all natural and spiritual being."<sup>27</sup> Clausewitz's message was that there is a continual interplay between the elements of the trinity – people, government, and military. He insisted that friction separated the theoretical absolute war from real war, and that uncertainty dominates the battlefield.

To succeed in this uncertain environment, an individual must possess attributes of intellect and temperament. Clausewitz reveled in the holistic continuity of these two attributes and their orchestration into brilliant action, "First, an intellect that, even in the darkest hour, retains some glimmerings of the inner light which leads to truth; and second, the courage to follow this faint light wherever it may lead."<sup>28</sup> It took genius, not principles, to appreciate the fluidity of the battlefield and its moral, mental, and physical forces.

Genius was the force that understood the psychological and physical effects of the trinity. To be effective, the commander must be astutely aware of policies, major issues confronting society, the personalities of the major trinity players, a history of warfare,

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<sup>26</sup> Amos Perlmutter, "Carl von Clausewitz, Enlightenment Philosopher: A Comparative Analysis," *The Journal of Strategic Studies* 11(1988), 8.

<sup>27</sup> Ibid., 8.

<sup>28</sup> Clausewitz, 102.

and possess solid operational experience.<sup>29</sup> Amos Perlmutter insightfully related Adam Smith's philosophy of human conduct at the core of *Wealth of Nations*, to Clausewitz's Genius at the core of *On War*.<sup>30</sup> Genius not only realized the interplay of psychological, cognitive, and physical forces on the battlefield, he embraced them. To Clausewitz, Smith, and other followers of the Enlightenment, the individual played a central role in overcoming the obstacles of his environment, whatever and wherever that environment might be.

### **Development of Genius in Younger Officers**

Clausewitz's early years were marked by solid experience in war and rapid progression on the wings of intellectual achievement. His mentor, General Gerhard von Scharnhorst, played a major role in his life by not only sponsoring his military progression, but also instilling in him an appreciation for intellectual pursuit and a keen awareness of the political and social forces in war.<sup>31</sup>

Clausewitz believed a genius is a person in possession of exceptional gifts of intellect and temperament. While he went on to discuss possible attributes of each category, he was adamant that the key was not in individual attributes, but in the "harmonious combination" of the whole.<sup>32</sup> He focused his discussion on the commander, but he acknowledged the importance of identifying, developing, and rewarding genius in junior officers.<sup>33</sup> Peter Paret highlights that the same separation Clausewitz applied to absolute and real war equally applied to genius and ordinary people. Clausewitz had seen near absolute war and genius in the French Revolution and Napoleon, respectively, but he knew through training, experience, logic, and personal attributes, ordinary people could rise to some level of genius.<sup>34</sup>

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<sup>29</sup> Ibid., 146.

<sup>30</sup> Perlmutter, 10.

<sup>31</sup> Peter Paret, "The Genesis of *On War*," *On War*, Clausewitz (Princeton, NJ: Princeton University Press, 1984), 3, 8.

<sup>32</sup> Clausewitz, 100.

<sup>33</sup> Ibid., 110-111.

<sup>34</sup> Peter Paret, "Clausewitz," in Paret, ed., *Makers of Modern Strategy* (Princeton, NJ: Princeton University Press, 1986), 203.

## **Elements of Genius**

From Clausewitz, we can deduce six elements, which should be encouraged or fostered to develop genius. The first five elements are a combination of intellectual and emotional development, while the sixth relates to encouraging the attainment of genius in subordinates. The elements are:

1. Experience – personal performance and experimentation in a specialty.
2. Study – academic exploration into the theory, influences, and history of a chosen field.
3. Logic – the application of sound judgement given the environment, process, constraints, and restraints.
4. Intuition – insightful, creative, and innovative thought.
5. Initiative – boldness and courage to act
6. Mentoring – fostering the professional and personal development of subordinates.

The first element, day to day experiences, provides the commander with a wealth of personal knowledge. The more opportunities and exposure to varying situations, the more robust this education will become. Second, the future leader must learn from the experience of others. Through the academic study of history, theory, specific cases, and current events, the individual can greatly expand his or her level of knowledge. Also part of the academic education is understanding the basic principles and processes necessary to complete the mission successfully. In the case of acquisition, it means understanding the process.

As experience and academic study combine and mature, the leader refines his or her logic and intuition – the third and fourth elements, respectively. Both logic and intuition will be accentuated in an environment that rewards experimentation and innovation, but does not readily punish failure. While every leader must take responsibility for his or her actions and that of their troops, under low threat conditions, time should be provided for low-risk experimentation and learning. The fifth element, initiative, though often an innate gift, will also benefit from a low-risk setting. Little change will occur if the leader is unable or unwilling to take chances and improve the situation.

The final element, mentoring, is not only essential to the continuation of leadership qualities in subordinates, but it is also important in the development of leader. It is said the best way to learn something is to teach it. Likewise, the leader must work to

improve the genius qualities in subordinates, and in doing so, reap the benefits in his or her growth.

By aiding future leaders in the refinement of these six elements, individuals will develop varying degrees of genius. One cannot expect that every leader will rise to the level of a Napoleon. Nor does any leader possess the talents that are ideal for each situation. However, a structured development program will dramatically affect the leader's chance for success, whether they are on the battlefield or the halls of the program office.

## **Chapter 3**

### **Educating the Acquisition Warrior**

*“It is vitally important to enhance the quality of the defense acquisition workforce – both by attracting qualified new personnel and by improving the training and motivation of current personnel.”*

- The Packard Commission, 1986.

#### **Formal Learning**

The intellectual and psychological development of acquisition officers occurs both formally and informally. Formal learning is a requisite set of instruction comprised of academic study, specialty training, and professional military education. Informal learning is gained through the mentoring of experience and self-directed study. This chapter will begin by assessing the formal specialty training provided within the framework of the acquisition professional development program (APDP). The logic behind the program, program objectives, and current curricula will be appraised to determine if some or all of Clausewitz’s elements of genius are encouraged.

The second half of the chapter will investigate the major professional military education (PME) schools and programs, from the Air and Space Basic Course to the National War College. Again, the curricula of these institutions will be evaluated to determine how well they match up to the Clausewitzian standard.

#### **The Acquisition Professional Development Program**

##### **Legislation and Directives**

The APDP was legislated by Congress to address deficiencies in the acquisition workforce. In 1986, the Packard Commission described the DoD workforce as

“undertrained, underpaid, and inexperienced.” The commission called for change by attracting qualified people and improving the training and motivation of current personnel.<sup>35</sup> Following the Packard Commission’s recommendations, in 1990, Congress passed the Defense Acquisition Workforce Improvement Act.

This legislation, made a number of recommendations to the Secretary of Defense, including:<sup>36</sup>

1. Rotating officers through critical acquisition positions to encourage career broadening and to infuse new ideas.
2. An interservice exchange program to aid in developing better businesses practices across the services.
3. An intern program for junior officers to gain exposure to high level operations and decision-makers.
4. A cooperative education program with accredited institutions for undergraduate credit.
5. A scholarship program for bachelor and master’s credit to encourage continued improvement.
6. The creation of the Defense Acquisition University’s “acquisition system for education and research.”

In response to the congressional call for reform, the DoD developed directive 5000.52-M, the Acquisition Career Development Program in 1991, which directed the Air Force to institute APDP. Following the legislative guidance, the program is designed to develop long term, highly qualified acquisition personnel, meet current and future acquisition needs, increase the proficiency in the DoD acquisition workforce, and ensure effective training and education resources are available.<sup>37</sup>

This program created eleven specialty areas under the rubric of acquisition:<sup>38</sup>

1. Acquisition Logistics
2. Auditing
3. Business, Cost Estimating, and Financial Management
4. Communications and Computer Systems

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<sup>35</sup> *Defense Acquisition Workforce Improvement Act*. Public Law 101-510, Title XII, 10 U.S.C. 1701-64, *Air Force Acquisition Policies Homepage*, n.p.; on line, Internet, 24 January 1998, available from [http://www.safaq.hq.af.mil/acq\\_pol/](http://www.safaq.hq.af.mil/acq_pol/)

<sup>36</sup> *ibid.*, u4e.1, u4e.g.1, u2, u3, u6.

<sup>37</sup> US Under Secretary of Defense for Acquisition and Technology, DoD Directive 5000.52.M, *Acquisition Career Development Program*, 1995, *Air Force Acquisition Policies Homepage*, n.p.; on line. Internet, 24 January 1998, available from [http://www.safaq.hq.af.mil/acq\\_pol/](http://www.safaq.hq.af.mil/acq_pol/)

<sup>38</sup> Assistance Secretary of the Air Force (Acquisition), *Acquisition Professional Development Program*, 1989, *Air Force Acquisition Policies Homepage*, n.p.; on line. Internet, 24 January 1998, available from [http://www.safaq.hq.af.mil/acq\\_pol/](http://www.safaq.hq.af.mil/acq_pol/)

5. Contracting
6. Industrial/Contract Property Management
7. Manufacturing, Production, and Quality Assurance
8. Program Management
9. Purchasing
10. Systems Planning, Research, and Development Engineering
11. Test and Evaluation

Within each field, three levels of competency were established to designate varying degrees of competency. Level 1 is for entry level personnel attempting to gain their initial acquisition experience. Level 2 is for the military or civilian member moving into leadership roles, and the attainment of level 3 indicates the highest level of expertise.

To become accredited at the next higher level of competency, each individual must meet a minimum standard in three separate categories of knowledge. First, academic degrees are encouraged both for initial entry and continued professional development. For instance, to become certified at level 2, the program manager should have completed a master's degree in engineering, systems management, or business administration.<sup>39</sup> Second, specialty courses are structured to improve the individual in his or her area of expertise. The test and evaluation specialist, for example, is required to attend several test and acquisition management related courses before achieving the next level of certification. Third, specialty experience is necessary to ensure the individual has not only filled the academic "blocks," but has also had hands-on experience in their field. A final category, though not mandatory, is career broadening assignments to gain a more in-depth perspective of the acquisition, political, and warfighting environment.

## **Evaluation**

Experience. The effectiveness of APDP to encourage experience is mixed. On the one-hand, the program does an admirable job in ensuring that officers have experience in their area of expertise before progressing to another level and a higher degree of responsibility. It also encourages the individual to develop a broader experience base in acquisition related fields through career broadening. Unfortunately, that is where the experience line is drawn, because little effort is made to provide operational insight; for example, only two specialties, program management and quality

assurance, mention operational tours in their description of career broadening.<sup>40</sup> While not all of the specialties would benefit from operational tours, a number of areas were conspicuously absent, to include test and evaluation, communications, logistics, and engineering and research.<sup>41</sup> In addition, the education and training specialty has no qualification standards, nor does the program management oversight track for flag officers.<sup>42</sup>

C-130 pilot and program manager, Major Bill Spacy insisted, “Everyone in acquisition should have at least two years in the operations world to understand real problems.”<sup>43</sup> He illustrated the point with an example during his assignment to the C-17 program office:

The C-17 met every detailed specification on temperature in the cargo compartment, but there was a huge difference between the floor temperature and several feet above the floor. Repeated meetings and discussions could not convince engineers that there was a problem. Resolution finally came when corporate engineers took a flight to England and back and experienced the freezing temperatures first-hand!<sup>44</sup>

Gen Pearson, Director of Operations, Headquarters, Air Force Materiel Command and former test pilot, concurred, “Some specialties may not need ops (operations) exposure, but the hard core decisions makers, like program managers, need it to fall back on.”<sup>45</sup>

One example of an encouraging program to reconcile the warfighter and acquisition communities is a prototype effort called the Operational Space and Missile

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<sup>39</sup> Ibid.

<sup>40</sup> Though operational tours are mentioned, emphasis is clearly on acquisition related broadening.

<sup>41</sup> US Under Secretary of Defense for Acquisition and Technology, DoD Directive 5000.52.M, *Acquisition Career Development Program*, 1995, *Air Force Acquisition Policies Homepage*, n.p.; on line. Internet, 24 January 1998, available from [http://www.safaq.hq.af.mil/acq\\_pol/](http://www.safaq.hq.af.mil/acq_pol/)

<sup>42</sup> It is little wonder that the acquisition officer is berated by his warfighting counterpart. How can an individual be expected to develop a warfighting system when he has no first-hand experience of the operational environment? Equally disturbing, how can a general officer, with only operational experience, grasp the complexities of the acquisition environment? It appears there is ignorance and oversimplification on both sides of the acquisition process.

<sup>43</sup> Maj William Spacy, Maxwell AFB, AL, interviewed by author, 9 January 1998.

<sup>44</sup> Ibid.

<sup>45</sup> Brig Gen Doug Pearson, Wright-Patterson AFB, OH, interviewed by author, 11 February 1998.

Tour (OSMT). This program was a result of shortfalls in senior grade acquisition officers with operational space experience. Currently, there are only 32 colonels with space experience that are needed to fill 82 positions. In the short term, 13 to 26 field grade officers will be encouraged to take a career broadening operational tour. At the same time, space and missile officers will volunteer for an acquisition tour<sup>46</sup>

In the long term, 40 second lieutenants will complete an operational tour, followed by an acquisition tour. Upon completion of the assignments, the officers will be divided between Space Command and Materiel Command. Both commands benefit; the operators gain technical expertise, while the acquirers gain operational experience.<sup>47</sup>

There are efforts to broaden the perspective of acquisition officers, but they fall short in meeting the operational deficiency. The Operational Space and Missile Tour is a good start, but this program is still in its infancy and does not address all aspects of the core acquisition community. Although the APDP legislation may have intended that officers be provided a more robust background, it appears that the current program is only meeting a portion of this requirement, and therefore falls short of the Clausewitzian standard for experience.

Study. As with the “experience” evaluation, APDP is only partially fulfilling the academic education commitment. High marks come from familiarizing the community with the complicated process of acquisition and changes in business practices. The APDP educators are equally effective in specialty training. Gen Hawley expressed that people are becoming specialists, because the business has become complicated – acquirers need to be experts in technology, cost control, contracts, and rules. He added that he saw “no evidence of shortcomings in the acquisition education.”<sup>48</sup> Lt Jason Dyer echoed these remarks, stating, “The financial management training prepared me to effectively do the job.”<sup>49</sup> Finally, Capt Kutrieb commented, “The acquisition 201 course was very helpful, and in particular, the case studies and exercises were great.”<sup>50</sup>

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<sup>46</sup> Capt Darnell, “Talking Paper on Space and Missile Leader IPT,” 6 June 1997.

<sup>47</sup> Capts Walker and Darnell, “Talking Paper on Operational Space and Missile Tours for Acquisition Officers,” 18 December 1996.

<sup>48</sup> Gen Richard Hawley, Air Combat Command, Langley AFB, VA, interviewed by author, 3 February 1996.

<sup>49</sup> 1Lt Jason Dyer, Los Angeles AFB, CA, interviewed by author, 12 January 1998.

<sup>50</sup> Capt Joshua Kutrieb, Maxwell AFB, AL, interviewed by author, 20 January 1998.

I could find no mention, however, of leadership, innovation, creativity, or mentoring in any of the acquisition course curricula. Instead, each course was directed towards learning how to feed the required information into the acquisition machine. Capt Block recounted, “The acquisition 101 course was far too detailed and failed to provide the big picture of how acquisition fits into the warfighting mission.”<sup>51</sup> Capt Kutrieb was even more graphic when he described his entry level, systems 101 course: “The class consisted of an airman on a video tape talking for eight hours over one week. The tools they provided were very generic and not much use, and there was no incentive to do well.” Gen Clay added that when he attended Defense Systems Management College (DSMC) in 1989, “You got people who had never been exposed to acquisition along with career acquirers...it didn’t hit the mark with either group.”<sup>52</sup>

In an attempt to keep personnel aware of the changes and tools provided by acquisition reform, Mrs. Darlene Druyun, Acting Assistant Secretary of the Air Force for Acquisition, issued the Lightning Bolt Initiatives in May 1995. Lightning bolt #9 directed that an integrated education, training, and implementation strategy be created to disseminate the latest acquisition reform information. Two working groups were established. Group one is developing a short term training plan designed to develop the skills, knowledge, abilities, experience, and understanding of how to use reform tools. Phase one’s goal is to disseminate information to the SPOs as quickly and effectively as possible. Phase two will incorporate the training plan into PME schools.<sup>53</sup>

The second group, perhaps more in-tune to Clausewitzian thought, was to develop the “Renaissance Person.” Under this program, attributes of acquisition leaders were to be identified, such as knowledge, skills, abilities, and experience.<sup>54</sup> Once identified, a program would be established to develop multiskilled, interdisciplinary experts with a broad acquisition perspective.<sup>55</sup> The program would take three years, rotating young

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<sup>51</sup> Capt Michael Block, Hanscom AFB, MA, interviewed by author, 27 January 1998.

<sup>52</sup> Brig Gen John Clay, Los Angeles AFB, CA, interviewed by author, 7 January 1998.

<sup>53</sup> HQ AFMC/DPE, *Air Force Integrated Education and Training Strategy and Implementation Plan* November 1995, *Air Force Acquisition Policies Homepage*, n.p.; on line. Internet, 24 January 1998, available from [http://www.safaq.hq.af.mil/acq\\_pol/](http://www.safaq.hq.af.mil/acq_pol/)

<sup>54</sup> Ibid.

<sup>55</sup> “Education and Training Effort Advances Acquisition Reform,” *Leading Edge*, March 1996, 1.

officers and civilians through a number of the eleven functional areas. Unfortunately, lack of funds and interest has left the program withering on the vine.<sup>56</sup>

Acquisition courses and lightening bolt initiatives are attempting to improve and refine the developer's knowledge base. While they score high marks in providing specialty expertise, they fail to encourage the innovation, creativity, and operational perspective necessary to navigate the bureaucratic morass. Gen Pearson stated, “We are doing a pretty good job [of educating], but we’re not doing the whole job. Decisions in acquisition are often done in a technical precise way without looking at the total impacts.”<sup>57</sup> Lt Col Francois, special access program manager, added, “The methods of PME and APDP don’t appeal to people looking for intellectual discovery, nor do they try to bring out creative qualities.”<sup>58</sup>

Logic. The development of logic has been largely successful, because it is teaching officers to function in a bureaucratic process. On the positive side, specialty training and advanced acquisition courses provide hands-on case studies and exercises that refine the officer’s acquisition skills. Maj Kriegbaum comment reflected most the interviewees: “The program managers know their business.”<sup>59</sup> Gen Muellner agreed that the acquisition schools and courses were “generally good,” but cautioned that “we are weak in understanding how industry functions.”<sup>60</sup>

Regrettably, as illustrated by early comments made by Capts Kutrieb and Block, entry-level courses are mundane and pedantic, creating a poor learning environment. Additionally, little effort is made to encourage creative thought by providing the foundation of acquisition and operations. Lt Col Francois insisted, “Developers aren’t coming back to apply their education, because a lot of what we do is common sense – this is where the innovation occurs. Program management schools focus on detail, but they don’t hit the goals and the big picture until later.”<sup>61</sup>

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<sup>56</sup> Lt Col Gaillard, Wright-Patterson AFB, OH, interviewed by author, 21 January 1998.

<sup>57</sup> Pearson

<sup>58</sup> Lt Col Ken Francois, Los Angeles AFB, CA, interviewed by author, 4 February 1998.

<sup>59</sup> Kreighbaum

<sup>60</sup> Lt Gen George K. Muellner, Washington DC, interviewed by author, 29 January 1998.

<sup>61</sup> Francois

Intuition, Initiative, and Mentoring. “Not applicable” may be the kindest way to portray these three elements. It is difficult in a classroom setting to encourage intuition and initiative, but mentoring should be a mandatory goal.

## **Professional Military Education**

For convenience, I have divided acquisition academic courses from the mainstream Air Force and DoD schools. The PME schools and programs to be addressed are the Air and Space Basic Course (ASBC), Squadron Officer’s School (SOS), Air Command and Staff College (ACSC), Air War College (AWC), National War College (NWC) and the Industrial College of the Armed Forces (ICAF). The career level of the officer separates the schools, from company to senior grade; therefore, the curriculum and duration of each program are structured for the level of the student. As with the APDP, there are strengths with the current academic designs of each program and there are weaknesses. For the purpose of this study, we will begin with a short overview of each school, and then compare them with Clausewitz’s genius.

### **PME Schools and Programs**

The Air and Space Basic Course. The purpose of the ASBC “is to produce officers who understand their roles in tomorrow’s Air Force.”<sup>62</sup> The former USAF Chief of Staff, Gen Ronald Fogleman, and Secretary of the Air Force, Sheila Widnall, initiated the ASBC. Both realized the importance of suppressing the occupationalism gripping the Air Force and replacing it with the perspective that we are airmen first. Although it is too early to tell if the program will unite operational and support personnel, the effort is long overdue. A test course, beginning in July 1998, will focus on air and space power history, core competencies and values, and teamwork between operational and support personnel.<sup>63</sup> As with all of the mainstream PME schools and programs, the focus is not on specialty expertise and experience, but on the main missions of the Air Force.

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<sup>62</sup> “Air and Space Basic Course Information Update, July 1997,” *Air and Space Basic Course Homepage*, n.p.; on line. Internet, 3 February 1998, available from <http://www.au.af.mil/asbc.html>

<sup>63</sup> Ibid.

Squadron Officer's School. The mission of SOS "is to improve professional competence of company grade officers and inspire dedication to the profession of arms."<sup>64</sup> This seven-week course is focused on writing, speaking, and leading at the company-grade level. The curriculum provides both classroom and field opportunities to develop and refine officership skills. Unlike many of the PME schools, initiative and intuition are encouraged in athletic and leadership exercises. Mentoring of the students, or teaching mentoring techniques, is not a part of the program.

Air Command and Staff College. The mission of ACSC "is to educate midcareer officers to lead in developing, advancing, and applying air and space power in peace and war."<sup>65</sup> Over the eleven-month program, officers study a variety of subjects from national policy to joint operations. Written examinations provide some opportunity to apply logical analysis to a particular problem, but there is little opportunity for exerting initiative or intuition. The "leadership" block of study covers the spectrum of mid-level challenges, from writing enlisted appraisals to sitting on promotion boards. The only discussion of mentoring within this block is an overview of the Air Force's semi-annual counseling requirement.

Air War College. AWC's mission "is to educate senior officers to lead at the strategic level in the employment of air and space force, including joint operations, in support of national security."<sup>66</sup> This eleven-month course focuses on higher-level policy issues necessary for senior positions. The curriculum includes, 37 hours of study dedicated to values, attitudes, ethical factors, and challenges of leadership, but mentoring is not mentioned. A three-week field trip to various parts of the globe provides an effective method to learn first-hand from foreign military and civilian counterparts.

National War College. The mission of the NWC "is to prepare future leaders of the armed forces, state department, and other civilian agencies for high-level policy, command, and staff responsibilities by conducting a senior-level course of study in

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<sup>64</sup> "Squadron Officer School Curriculum," *Air University Catalog 1997*, (Maxwell AFB, AL: Air University Press, 1997), 25-28.

<sup>65</sup> "Air Command and Staff College Curriculum," *Air University Catalog 1997*, (Maxwell AFB, AL: Air University Press), 1997, 15-17.

<sup>66</sup> "Air War College Curriculum," *Air University Catalog 1997*, (Maxwell AFB, AL: Air University Press), 1997, 7-10.

national security strategy and national security policy process.”<sup>67</sup> In NWC’s discussion of its curriculum, they stress exercises in intuition, logic, creativity, and innovation, but I could not find these elements in their “27 propositions” that define the core curriculum; nor was there a discussion of mentoring or leadership. They did quote Clausewitz repeatedly, and in particular his thoughts on war being a clash of wills and human, not materiel, forces dominating the battlefield. Unfortunately, they overlooked the “genius” lessons.

Industrial College of the Armed Forces. ICAF’s mission was very detailed:<sup>68</sup> “To prepare selected military officers and civilians for senior leadership and staff positions by conducting postgraduate, executive level courses of study and associated research dealing with the resource component of national power, with special emphasis on materiel acquisition and joint logistics, and their integration into national security strategy for peace and war.”<sup>69</sup> As with the other senior level schools, ICAF is designed to focus on broader policy issues of the senior officers, but with special attention given to the management of national resources. Part of the education includes field trips to visit with industry and government decision makers to discuss their processes and issues. Additionally, ICAF was the only school that mentors their students. Each student is required to write their objectives and goals, and then work with a faculty advisor to achieve those goals. Advisors and instructors evaluate each student throughout the year to assess strengths and weaknesses. Psychological testing, such as the Myers-Briggs test, is also administered. While there is an admirable effort paid to mentoring students, no mention is given to teaching students how to mentor subordinates. Also lacking, is a concerted effort to encourage innovation and creativity.

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<sup>67</sup> “National War College Mission and Curriculum,” *National War College Homepage*, n.p.; on line. Internet, 19 January 1998, available from <http://www.ndu.edu/ndu/nwc/nwchp.html>.

<sup>68</sup> It seems the more advanced the school, the more complex the mission statement. I am not sure if this is a reflection of broader responsibilities or poor articulation.

<sup>69</sup> “Industrial College of the Armed Forces Mission and Curriculum,” *ICAF Homepage*, n.p.; on line. Internet, 19 January 1998, available from <http://www.ndu/icafe/icafeh.html>.

## **Evaluation**

Overall, the objectives of the PME schools are focused at providing a perspective and officership tools commensurate with rank. Varying expertise and experiences within the diverse student body limit the amount of specialized training possible. The generic format is appropriate for broadening the perspective of the students in a condensed academic setting. Still, there are elements of Clausewitzian genius that could be emphasized in these academic settings.

Experience. The academic arena and diversity of career fields makes providing experience difficult. Arguably, there is some benefit from spending time with a wide diversity of officers, but in the context of specialty or operational experience, this “bonding” bonus is slight. SOS has more success in that they are teaching fundamental leadership principles that are not career specific. The low rating is not a condemnation of PME schools, but a reflection of the limitations of the environment.

Study. The curricula of the PME schools and programs are professionally developed and offer a broad range of courses designed to give maximum exposure to a number of concepts and situations. An impressive array of visitors from generals and ambassadors to foreign dignitaries and war heroes frequently bring their expertise to the school stage. Even more valuable, senior level schools provide the opportunity for students to visit political and military areas of interests around the globe – something Clausewitz specifically encouraged.

Unavoidably, the large range of expertise and experience levels forces instructors to teach to the lowest common denominator. The result is courses that leave a portion of the students unchallenged. Equally difficult for PME educators is the process of allowing students the opportunity to think “outside the box.” For example, attempting to standardize grading for 600 students at ACSC forces strict grading criteria designed for standardization rather than experimentation. Lt Col Francois commented that while ACSC was not a stimulating learning environment, his education at the National War College’s Information Warfare School provided a great deal more opportunity to

experiment with new concepts and ideas.<sup>70</sup> The new curriculum, smaller class sizes, and an unexplored mission enable this flexibility.

The PME schools have room for improving out of the box thinking, but they do an excellent job in addressing military related subjects – especially those that are historically based.

Logic. As stated previously, applying logic to an area of expertise was prohibitive due to the diversity of students. Conversely, the opportunity to apply lessons learned through exercises and exams was useful, though these opportunities were generally constrained by the academic environment. Additionally, other than at ICAF, exercises and exams covered warfighting areas and did not relate to the management of acquisition resources. While obtaining warfighting insight is invaluable to the developer, it did little to promote the application of logic in the business of acquisition.

Intuition & Initiative. Academic study provides a greater knowledge base and the opportunity to apply logic to a situation; in turn, this enables intuition and the confidence for initiative. It is difficult in a classroom setting, however, to provide the opportunity to develop intuition and initiative, primarily due to three factors. First, the diversity of the audience does not allow participants to effectively contribute in their area of expertise - this is especially significant in the case of the acquirer, where most curricula do not address the career field. Second, the academic setting is so low threat that the natural pressures opposing taking the initiative are absent. Taking a chance on an examination or wargame provides little reassurance when attempting the action in the “real world.” Finally, wargaming models, while useful, are only as good as the software and constraints.

Clausewitz surely rolls over in his grave every time he hears that high level decisions are made using the results from a computer model, rather than those from the field. Col. James Burton chastised the Army for attempting to buy the Bradley Fighting

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<sup>70</sup> Francois

Vehicle on the results of a computer generated casualty study. Apparently, the computer model, combined with “controlled” tests, indicated that the Bradley was effective in defending itself and minimizing hazardous conditions inside its compartment. Unfortunately, each time experts said the model correctly predicted battlefield conditions, a live-fire test proved it was grossly inaccurate. After countless modifications to the model, Congress stepped in and insisted that full scale live-fire testing be conducted.<sup>71</sup> Gen Pearson indicated that this is not solely an Army problem, stating that during test and evaluation we tend to exclude certain test items and resist going to operational locations because it costs too much. He admonishes that we must look at the collateral benefits.<sup>72</sup>

The bright spot in the “initiative” assessment was SOS. Their athletic contests, Project X, and other leadership exercises offer company grade officers with the chance to experiment in a higher-pressure setting. While the participants are not learning how to develop initiative and intuition in their area of expertise, it is a very useful contribution to their leadership foundation.

Mentoring. Other than ICAF, which performs a valuable mentoring function for the students, the PME schools failed miserably in regards to mentoring. Additionally, none of the schools taught mentoring techniques for use with peers and subordinates. A clear indication of Air Force commitment, or lack there of, is evident in the Air and Space Basic Course. This insightful initiative, designed to indoctrinate new officers in the Air Force, dropped its mentoring block due to lack of interest.<sup>73</sup>

Unlike initiative and intuition, which are difficult to teach in an academic setting, mentoring techniques could be easily incorporated. Lt Col Francois argued, “There’s lots of lip service that people are our number one priority, but we spend most of our time re-organizing.”<sup>74</sup> He recounts his strong non-commissioned officer (NCO) group within his

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<sup>71</sup> James G. Burton, *Pentagon Wars*, (Annapolis, MY: Naval Institute Press, 1993), 233-236.

<sup>72</sup> Pearson

<sup>73</sup> Capt Wiggins, Maxwell AFB, AL, interviewed by author, 5 February 1998.

<sup>74</sup> Francois

SPO. “The NCOs have a much more positive outlook on their jobs, because they have better working relationships and personnel ties.”

Interestingly, perhaps the best mentors in the military – the NCOs – *have* found time to incorporate a mentoring study block in their Senior NCO Academy. The Academy’s Superintendent, CMSgt Samuel Whalum, stated, “Mentoring is a critical issue at the Academy.”

## Chapter 4

### Mentoring the Mentors

*“The notion that all the attributes of a leader are innate is demonstrably false...most of the capabilities that enable an outstanding leader are learned.”*

- John W. Gardner  
*On Leadership*

#### Informal Learning

In contrast to compulsory formal learning, informal learning is just what it says, informal personal and professional development; it can be attained through relevant experience as well as academic study. Mentoring is key in the facilitation of informal learning, because the commander or supervisor sets the tone for effective development of subordinates. The intangibles of an enriching working environment will be the growth of logic, intuition, and initiative. Since the combinations of leader and surroundings are infinite, it is difficult to focus on specific cases to capture a clear picture of Air Force mentoring. Instead, this chapter will look at initiatives that are attempting to make the leader more effectual in building his subordinates. It is also important to remember that mentoring is a cyclical process. In the short term, both mentor and subordinate develop together from their interactions. In the long term, like child and parent, the mentor is setting the example for the subordinate to become a proficient mentor.

## Mentoring Basics

Air Education and Training Command defines mentoring as, “A relationship in which a person with greater experience or wisdom guides another to a higher level of personal and professional excellence.”<sup>75</sup> Unlike narrower views, which focus on “mentoring by appointment,” this study expands the mentor’s role into three areas: counseling and assistance, education, and opportunity. The areas are further broken down as follows:

1. Counseling and assistance – job performance, concerns and issues, and professional and personal development.
2. Education – formal education, personal education, knowledge of organizational and institutional values and goals, and organizational enrichment programs.
3. Opportunity – exposure, empowerment, and creating a learning environment.

Counseling and assistance encompasses the primary goals of standard mentoring programs - job performance - but it also extends far beyond; professional and personal development is an area often missed. What are the officer’s career and individual goals and objectives, and how will those be met? What steps are required to attain those goals? What future jobs will be beneficial, and what is the value of career broadening into other fields? Finally, are there personal or organizational problems that are preventing the officer from achieving his or her goals?

Professional military education, specialty schools, and academic institutions are only a springboard into a sea of learning. Education extends from encouraging personal edification to understanding the values of the organization. In *Challenge of Command*, Roger Nye relates that the mentor may not be familiar with a particular area of expertise, but his task is to cultivate the desire to learn in subordinates.<sup>76</sup> Further, the supervisor instills organizational and institutional values. These values become a critical foundation for future intuition and initiative. Organizational enrichment programs are another education tool. Of the officers and civilians interviewed, those with positive mentoring experiences often described an office environment encouraging success. Gen Clay set up a number of initiatives as a program director to promote learning. He created brown-bag

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<sup>75</sup> Air Education and Training Command Policy Directive 36-1, *Air Education and Training Command Mentoring Program*, 8 January 1996.

<sup>76</sup> Roger Nye, *The Challenge of Command: Reading for Military Excellence* (Wayne, NJ: Avery Publishing Group, 1986), 151.

lunches to introduce new concepts and specialties, Friday afternoon socials for workers to vent their issues, monthly program reviews to allow managers unobstructed access in discussing programmatic with the director, and Dragon Slayer Awards for anyone with an idea that could improve the program office.<sup>77</sup>

While the first two areas of mentoring are important, without the opportunity to experiment, succeed, fail, and learn, the subordinate's growth will be stunted. It is in this final category – opportunity – that the officer is empowered to make decisions, act on logic and intuition, and succeed or fail. The important element is that failure, unless taken to the extreme, is more valuable than success in the learning process. Jim Henderson stated, “The only downside [of innovating] is if you don't try...if you fail you still win, and if you succeed you define a new route.”<sup>78</sup> Former Electronic Systems Center commander, Lt Gen (ret) Charles E. Franklin, added that all he asked of his officers was that they “do what's right, do what's smart, and do what's legal.”<sup>79</sup>

## **Air Force Programs**

### **Air Force Counseling**

The Air Force attempt at mentoring is a feeble one, because it fails both supervisor and subordinate. Lt Gen Muellner, Principal Deputy, Office of the Assistant Secretary of the Air Force for Acquisition, spoke for *all* of the interviewees when he stated that mentoring is “an essential area where the Air Force is weak.”<sup>80</sup>

The purpose of the counseling program is “for a rater to tell a subordinate officer what is expected regarding duty performance and how well he or she is meeting those expectations.”<sup>81</sup> The program is conducted in the first 60 days of supervision, and then each year at the mid-point of the officer performance report (OPR) cycle.<sup>82</sup> In 1996, the

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<sup>77</sup> Gen Clay was reluctant to talk about his own achievements, but having been in his program office for several years, I can attest to the success of these initiatives.

<sup>78</sup> James Henderson, Burlington, MA, interviewed by author, 30 December 1997.

<sup>79</sup> Lt Gen (ret) Charles E. Franklin, Nashua, NH, interviewed by author, 14 January 1998.

<sup>80</sup> Lt Gen George K. Muellner, Washington DC, interviewed by author, 29 January 1998.

<sup>81</sup> Air Force Instruction (AFI) 36-2402, *Officer Evaluation System*, July 1996, 2.1.

<sup>82</sup> It is anticipated that counseling during the second half of the year will be conducted when the OPR is written.

requirement for counseling only lieutenants and captains was raised to counseling through the rank of colonel. Typically, both counselor and counseled will receive written notification that they must meet to discuss the subordinate's job performance in six areas:

1. Job knowledge
2. Leadership skills
3. Professional qualities
4. Organizational skills
5. Judgement and decisions
6. Communications skills

The counselor, or rater, is required to complete a performance feedback worksheet (AF form 724A/B) to indicate the subordinate's success in each category. Although the back of the form is provided to discuss "strengths, suggested goals, and additional comments,"<sup>83</sup> interviews suggested it is rarely completed.

### **Air Education and Training Command Mentoring Program**

Air Education and Training Command (AETC) has attempted to build on the Air Force counseling program by providing mentoring tools for supervisors. The program is "intended to bring about a cultural change in the way we view professional development."<sup>84</sup> The AETC talking paper adds that mentoring "is an inherent responsibility of leadership."<sup>85</sup> The supervisor must know his people and accept responsibility, and he must be accountable for his subordinate's professional development.<sup>86</sup>

To aid the supervisor, AETC created policy directive 36-1. This easy-to-read handbook provides professional, personal, family, and counseling aids. To list a few examples, in the professional category there is information on promotions, PME, awards and decorations, and pay and allowances. Personal information includes off duty employment, physical and dental exams, and physical fitness. The family portion contains information covering areas like life insurance, immunizations, religious programs, and recreational activities. Finally, the counseling section discusses items such

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<sup>83</sup> AF form 724A, *Field Grade Officer Performance Feedback Worksheet*, October 1995.

<sup>84</sup> Capt D.G. Ashton, HQ Air University/XOOC, "Talking Paper. Subject: Air Education and Training Command Mentoring Program," 20 October 1996.

<sup>85</sup> Ibid.

<sup>86</sup> Ibid.

as counseling forms, guidance on how to make the most out of feedback sessions, and useful questions to ask.<sup>87</sup>

The directive further sets minimum goals for counseling as providing concise feedback on performance, professional development, and actions necessary to accomplish short, mid, and long-term goals.<sup>88</sup> These counseling sessions follow the same annual schedule as their Air Force counterpart.

## **Evaluation**

The standard Air Force counseling program is clearly lacking in many of the essentials to effective mentoring. Instead of listing the missing elements, it is easier to list its strength: job feedback. The AETC program makes the best of an impotent program by providing information useful to the counselor. More importantly, the AETC directive furnishes much needed guidance on how to conduct effectual mentoring sessions.

Unfortunately, both programs fall short in achieving the ultimate goal of the Air Force: to produce more capable officers. Starting with its stated purpose, “For the rater to tell a subordinate,”<sup>89</sup> the program has created a one-way flow of information – hardly an enriching atmosphere. There is little encouragement to discuss personal and professional goals, issues, or plans. Equally lacking is educating the mentor in effective counseling techniques, or in establishing a learning environment in the workplace. It is surprising that an organization like the Air Force, which appreciates the value of training, would be negligent in this important area – not so for industry. Jim Henderson relates that IBM sends its middle managers to an intensive program designed to make them better mentors. The school’s focus is to teach supervisors how to bring the most out of people while developing them personally and professionally.<sup>90</sup>

The one-way, annual feedback session is a beginning, but unless programs to develop the whole person follow it, the counseling will have limited use. The bottom line is whether buying a car or developing future leaders, “you get what you pay for.” As

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<sup>87</sup> Air Education and Training Command Policy Directive 36-1, *Air Education and Training Command Mentoring Program*, 8 January 1996.

<sup>88</sup> Ibid.

<sup>89</sup> AFI 36-2402.

long as the Air Force interest consists of a meager yearly effort, they will be get meager results. Fortunately, as alluded to earlier, not everyone in the Air Force undervalues mentoring.

## **Enlisted Mentoring**

Perhaps the best institutional mentors today can be found within the military NCO corps. Gen Franklin agreed, “There’s not enough mentoring of [commissioned] young folks, but the enlisted ranks do an excellent job.”<sup>91</sup> The questions is “what makes enlisted mentoring effective, and are there lessons to be learned?”

CMSgt Samuel Whalum, Jr., is the superintendent of the Senior NCO Academy. It is his job to institutionalize the lessons of leadership, so they can be passed to future NCO leaders. “Mentoring is a culture [in the enlisted corps]...it is an evolutionary process where the weak learn from the strong.”<sup>92</sup> Throughout their lives in the Air Force, enlisted personnel are continually reminded to take care of the troops because the commander holds them responsible. Supervisors must make sure the bills are paid, the family is cared for, and the personal needs are addressed.<sup>93</sup> He added,

Mentoring is also being a role model. The process begins on the first day of boot camp. Troops are taught to depend on each other, to look out for each other, to learn from each other, and to emulate those above them. Young troops observe older NCOs and want to emulate their personal and professional traits. The troops synchronize their behavior to correspond to positive feedback from the supervisor. You start preparing for senior NCO positions as an airman...it’s a life long continuum.<sup>94</sup>

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<sup>90</sup> Henderson

<sup>91</sup> Franklin

<sup>92</sup> CMSgt Samuel Whalum, Jr., Gunter AFB, AL, interviewed by author, 28 January 1998.

<sup>93</sup> Ibid.

<sup>94</sup> *ibid.*

The message is clear: to develop the cultural change and professional development the Air Force desires, a fundamental shift in the way officers perceive themselves and those around them is required. With problems of officer retention, this message becomes even more vital. Perhaps, the Air and Space Basic Course is a first step in making this culture shift.

## Chapter 5

### The Experts

*“Every military organization has its moral arbiters – those people who, by their words and deeds, set the standard for moral conduct.”*

– Roger Nye  
*Challenge of Command*

### Interviews

Warfighter, industry, and acquisition members were interviewed to gain better insight into the acquisition officer’s intellectual and psychological development. We have already seen some of their opinions in previous chapters, but Chapter 5 is dedicated to the analysis of their views. We will proceed through each of Clausewitz’s six elements of genius by addressing the concerns of the warfighter, industry, and the developer, in-turn. The focus is not to evaluate specific Air Force programs, schools, or initiatives, but to obtain first-hand testimony as to the Air Force’s effectiveness in developing the elements of genius.

### Experience

Warfighters. Warfighters were unanimous in their agreement that acquisition personnel lacked a vital operational perspective. Gen Hawley stated,

Everyone should have a grounding in ops assignments – it gives a mission focus. It makes people determined to give operators the tools [they need], and it opens their minds to listening to operators and understanding what they’re saying. Acquirers need that desire to understand.<sup>95</sup>

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<sup>95</sup> Gen Richard Hawley, Air Combat Command, Langley AFB, VA, interviewed by author, 3 February 1996.

These sentiments were echoed by Gulf War veteran Maj Kreighbaum, “An ops tour might be very beneficial in letting the SPO folks see why there is a need to hold to requirements, to bind them to the operational Air Force, and to give them the ability to defend the requirements to the contractor.”<sup>96</sup> He related that while working in Air Combat Command’s (ACC) Directorate of Requirements on the Joint Direct Attack Munitions (JDAM), he used to talk with his SPO counterparts about “the breadbox.” He referred to JDAM as a breadbox, because to them it was a box that had to do certain things, but they had no appreciation for its impact to the warfighter. “Hopefully, an ops tour will make developers feel they are part of the warfighting team.”<sup>97</sup>

Industry. Industry interviewees agreed with the warfighters as to the value of an operational tour. Additionally, they were concerned about a broader acquisition background. Gen Franklin stated, “A rotation in the ops world or other hands-on assignments are critical.”<sup>98</sup> He continued that changing assignments and locations is beneficial, because it gives Air Force personnel a larger perspective, and through the disruption of moving, it makes officers more tolerant to accepting change. He concluded, “[An operational tour] makes sure people see what they’re responsible for and why it’s important to operators.”<sup>99</sup>

Developers. As with the warfighting and industry communities, developers also saw the benefit of operations experience. Gen Clay had an interesting perspective on the shifting demographics of the acquisition workforce. When he was a second lieutenant at Aeronautical Systems Command lieutenants were rare, because most started their careers in an operational assignment. Captains and a normal pyramid of civil servants were the lowest level of management. “Today, they [Air Force Personnel Center] can’t fill the captain’s jobs so they’re off-set by lieutenants.”<sup>100</sup> The result is a lack of acquisition officers with operational experience, because they are not afforded the opportunity for an

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<sup>96</sup> Maj Jay Kreighbaum, Maxwell AFB, AL, interviewed by the author, 21 January 1998.

<sup>97</sup> Ibid.

<sup>98</sup> Lt Gen (ret) Charles E. Franklin, Nashua, NH, interviewed by author, 14 January 1998.

<sup>99</sup> Ibid.

<sup>100</sup> Brig Gen John Clay, Los Angeles AFB, CA, interviewed by author, 7 January 1998.

initial field tour. The OSMT program is the Space and Missile Systems Center's response to this deficiency.<sup>101</sup>

Though Gen Muellner was also an advocate of operational tours, he cautioned that moving back and forth between the operational and warfighting communities can make the officer a master of neither trade and therefore impact his skill level and promotion opportunities. Additionally, conditions change rapidly in the operational world, so a person quickly loses touch. "Just enough information may make a person as dangerous as not having had the ops tour in the first place."<sup>102</sup>

## **Study**

Warfighters. Most of the warfighters were confident in the skills of the developer, as evident in Gen Hawley's earlier statement regarding "no evidence of shortcomings."<sup>103</sup> Conversely, at least one operator was concerned about educational holes during initial development. Maj Miller suggested, "Program managers often lack technical knowledge, especially in the early stages of a program."<sup>104</sup> Without a basic technical understanding of the program, managers had difficulty grasping and executing modifications and prototypes.

Industry. Industry members were also concerned that acquirers were not obtaining the "right" kind of education. Mr. Henderson said, "All officers need a fundamental procurement education, because they don't know the rules." He continued that the lessons of flexibility and creativity are also being excluded from their studies. "Universities are instituting entrepreneurial programs, because business is having trouble getting people to adapt and innovate. The Air Force should borrow from these institutions and look at the successes and failures."<sup>105</sup>

Developers. The opinions of developers varied widely. Senior grade officers generally looked on the education system favorably, while field and company graders saw problems. Gen Mueller stated, "We have a very high quality workforce that is

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<sup>101</sup> Ibid.

<sup>102</sup> Lt Gen George K. Muellner, Washington DC, interviewed by author, 29 January 1998.

<sup>103</sup> Hawley

<sup>104</sup> Maj Dave Miller, Maxwell AFB, AL, interviewed by author, 22 January 1998.

<sup>105</sup> James Henderson, Burlington, MA, interviewed by author, 30 December 1997.

academically well equipped.”<sup>106</sup> He found weaknesses in the software areas and the knowledge of industry’s functions and incentives. Gen Muellner was also concerned that the Air Force is deficient in encouraging people to stay current:

Younger officers, especially rated, tend to shy away from academics. It’s too bad, because when you’re young you appear to be more capable of learning and more open to new ideas. Half the life cycle of technology is less than the length of a career...we need to make a conscious effort to stay current and add to the value stream. Instead, we tend to deincentivize academic improvement by not allowing it to be included in promotion boards...[they] shouldn’t be addressing past performance, but future performance potential.<sup>107</sup>

Gen Pearson added that the Air Force is doing an acceptable job at educating its personnel, but not the whole job. “We’re giving precise technical skills, but not a broad education. We need to educate and train program managers to look at the blue suit side and not the program or contractor side.”<sup>108</sup>

Lt Col Weigand related that when he first entered the Air Force the education program did not prepare him with the basics of development, such as what he could task a contractor to do. “I just knew a few arcane rules, like the [operation of the] PPBS (planning, programming, and budgeting system), without much applicability.”<sup>109</sup> Capt Kutrieb agreed, “I was thrown in the sea and it was sink or swim.” Aerospace Corporation was the continuity, “They did all the talking and I asked questions.” He related that it took a year to learn what an acquisition officer does; “Nobody took me aside to explain the system.”<sup>110</sup> Finally, Capt Block complained “there are no business management scholarships in ROTC (Reserve Officer Training Corps)...AFMC is big enough to merit specialized scholarships...we need a path for business management.”<sup>111</sup>

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<sup>106</sup> Muellner

<sup>107</sup> Ibid.

<sup>108</sup> Brig Gen Doug Pearson, Wright-Patterson AFB, OH, interviewed by author, 11 February 1998.

<sup>109</sup> Lt Col Tony Weigand, Maxwell AFB, AL, interviewed by author, 22 January 1998.

<sup>110</sup> Capt Joshua Kutrieb, Maxwell AFB, AL, interviewed by author, 20 January 1998.

<sup>111</sup> Capt Michael Block, Hanscom AFB, MA, interviewed by author, 27 January 1998.

## Logic

Warfighters. As previously stated, warfighters found that developers are adept at the programmatic of acquisition, but they lack the broader perspective necessary to link development with operations. Maj Miller cut to the chase:

Program managers don't lack acquisition knowledge, they have miss-ordered priorities. They are driven by CSP (cost-schedule-performance), but those may not necessarily be the most important things to the program. In the concept development phase, it is better to invest the time and money early. The CSP system doesn't capture added value and qualitative attributes like adaptability, flexibility, and safety.

Industry. While industry interviewees agreed that acquisition officers understand the commercial marketplace, they also felt that a broader perspective was lacking. "In the information systems area, military officers don't have the big picture of how C4ISR (command, control, communications, computer, intelligence, surveillance, and reconnaissance) works across the theater – they need it," said Mr. Nesbit.<sup>112</sup> Gen Franklin added that the warfighter and acquirer do not have the big dollar picture. "There needs to be some logic applied in structuring a program to fit the budget. At the working level, every requirement is essential without a knowledge of the true necessity."<sup>113</sup>

Developers. Developers, too, agreed that the need for an operational perspective was missing from the "logic" component. Maj Spacy related that upon joining the C-17 aircraft development program he witnessed poor communication and understanding between the operations and engineering communities. Gen Kadish, the program director, reversed this trend by restructuring user group interaction. Instead of playing an ancillary role, the groups reviewed each program change and participated in the overall development of the aircraft.<sup>114</sup>

Lt Col Francois suggested that the logic of acquisition is difficult to teach in schools, because acquisition is based on relationships. Personal relationships allow you

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<sup>112</sup> Robert Nesbit, Burlington, MA, interviewed by author, 6 January 1998.

<sup>113</sup> Franklin

<sup>114</sup> Maj William Spacy, Maxwell AFB, AL, interviewed by author, 9 January 1998.

to “get things done that the formal process has not anticipated...it all comes down to trust.”<sup>115</sup>

## **Intuition**

Warfighters. The elements of intuition, initiative, and mentoring were less familiar to the warfighters, because without first-hand experience of the office environment, it was difficult for them to draw conclusions about acquisition.

Industry. Industry members, working more directly with developers, were more outspoken about the acquisition corps and its processes. “There are too many rules for acquisition, and too many permission steps...[they] need someone with vision to cut through the red tape,” asserted Gen Franklin.<sup>116</sup> Mr. Henderson postulated that the civil servant corps may be partially to blame for the lack of innovation. “They [civil servants] tend to want business as usual, unfortunately, they are also the ones that often end up training the junior officers.”<sup>117</sup>

Developers. Developer views reflected those of industry. “Senior officers tend to be risk averse,” stated Gen Muellner. “It’s unfortunate, because if we are ever going to do things like streamlining and innovation there will clearly be risks.”<sup>118</sup> Capt Kutrieb echoed these remarks, “Encouragement and innovation is not occurring...officers need the opportunity to work through successes and failures.”<sup>119</sup> Lt Dyer summed up the developers thoughts, “Criteria for judging program managers does nothing to encourage innovation, creativity, or flexibility. It is all geared toward budget and schedule...acquisition is a risky business if you want to innovate.”<sup>120</sup>

## **Initiative**

Warfighters. As with the “intuition” element, it was difficult for warfighters to hypothesize about initiative in acquisition. However, Gen Hawley offered these thoughts:

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<sup>115</sup> Lt Col Ken Francois, Los Angeles AFB, CA, interviewed by author, 4 February 1998.

<sup>116</sup> Franklin

<sup>117</sup> Henderson

<sup>118</sup> Muellner

<sup>119</sup> Kutrieb

We tend to become so captured by inertia that we don't want to change. The whole acquisition system is defensive in nature. We've created an environment that acquisition professionals feel vulnerable if they step out of the box...it breeds a conservative mindset.<sup>121</sup>

Industry. Gen Franklin partially blamed the lack of initiative on incentives. "The poor incentive structure in government is not conducive to cutting costs."<sup>122</sup> He recounted that he never looked at the job in fear of punishment, but of doing what is right. Unfortunately, "that's not the mindset of the [acquisition] community."<sup>123</sup> Mr. Henderson concurred, "20 years ago people were willing to sit down and negotiate, now no one will take chances, because they are afraid of punishment."<sup>124</sup> Consequently, industry has become a reflection of the customer with rigidity and protests.<sup>125</sup> Likewise, initiative is a reflection of the leader. "Success, innovation, and creativity vary greatly with leadership...if it doesn't start at the top, it will not filter down," insisted Mr. Nesbit<sup>126</sup>

Developers. Gen Pearson was more adamant in his condemnation of the hostile acquisition environment:

The laws, restrictions, and abuses in acquisition have made the environment ripe for punishing failure. We are giving lip service to taking risks and trying, but as soon as we perceive failure, we punish the person who took a calculated risk that didn't work out. As leaders, we should accept some level of failure if the project or program was attempted using sound logic, reasonable judgement, measured risk, and an intent to succeed.<sup>127</sup>

Gen Pearson's comments resonated at the lower grades as well. Lt Dyer remonstrated, "No one will take the initiative without asking permission...since they're

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<sup>120</sup> Lt Jason Dyer, Los Angeles AFB, CA, interviewed by author, 12 January 1998.

<sup>121</sup> Hawley

<sup>122</sup> Franklin

<sup>123</sup> Ibid.

<sup>124</sup> Henderson

<sup>125</sup> Ibid.

<sup>126</sup> Nesbit

<sup>127</sup> Pearson

usually told “no,” they stop asking. People are just too worried about punishment and the lack of rewards to try.”

## **Mentoring**

Warfighters. Again, warfighters had no direct experiences with the mentoring effectiveness in the acquisition field, but Gen Hawley offered sage advice, “There’s always room for improvement...no leader, at any level, is spending enough time developing the talents of the people.”<sup>128</sup>

Industry. Industry’s opinion of mentoring was that it is both crucial and generally neglected. Mr. Henderson stated, “Frustrated lieutenants are allowed to sit back and not produce, because it takes too much time and trouble to worry about them. Someone must be willing to trust and empower them...a mentoring program will encourage mid-level managers to take those risks [in their subordinates]”<sup>129</sup> Mr. Henderson described how he tries to cultivate leadership in young officers. When working on acquisition programs with junior officers, his employees do not write the documents for the officers, as is the standard practice. Instead, they include the officers in the process. The result is “building pride and competency in the junior officers.”<sup>130</sup>

Developers. From senior to company grade officers, all were adamant about the importance of mentoring and the lack within the acquisition corps. Gen Pearson suggested there are exceptional pockets of mentoring, but they are personality driven. “There’s lots of excuses not to do it, so it needs to be built into the system.” Maj Spacy was fortunate to fall into one of those exceptional pockets while assigned to the C-17 program:

Gen Kadish [the program director] was crucial in management, he was a good delegator and empoweror, he focused on the major issues, and he highly encouraged the lightening bolts and change. He also sent many people to get smarter in their specialty area, and he hired a civilian expert to teach the SPO effective writing. He understood the company’s profit

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<sup>128</sup> Hawley

<sup>129</sup> Henderson

<sup>130</sup> Ibid.

motive and ensured there was a win-win arrangement with the government.”<sup>131</sup>

The company-grade interviewees were also fortunate in falling under effective mentors, but they cautioned that it was a matter of luck.<sup>132</sup> Capt Block recounted, "Other supervisors introduced their lieutenants to the Aerospace folks and set them free."<sup>133</sup> Lt Dyer agreed, "There were many lieutenants sitting around. The hierarchical system has a captain looking over two lieutenants...the captain does all the work, because he won't take the time to train his lieutenants."<sup>134</sup> Finally, when asked about the qualities of a good mentor, Lt Dyer responded,

A good mentor works hard, talks to everyone and truly listens. He believes there are no stupid questions, and he instills the feeling that everyone can add value. He wants to hear the opinions of others, and he focuses the team toward a specific objective.

## **Summary**

Generally, warfighters looked favorably on the developer skills, but agreed that operational empathy is lacking. While industry leaders felt that acquirers have a reasonable knowledge of the commercial environment, they encouraged development of the entrepreneurial spirit. Interviews of acquisition officers, from company to senior grades, yielded a variety of opinions as to the strengths and weaknesses in officer development. In the final chapter, we will attempt to reconcile the areas of weakness with recommendations for change.

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<sup>131</sup> Spacy

<sup>132</sup> One major bias in the data of this study is in the subjective nature in which the interviewees were selected. I purposely sought young officers who might have broader insights than their peers. It is an interesting coincidence that these high achievers all had an effective mentor in their early years.

<sup>133</sup> Block

<sup>134</sup> Dyer

## Chapter 6

### Bridging the Gap

*“Genius is one percent inspiration and ninety-nine percent perspiration.”*

Thomas Alva Edison

#### Summary of Findings

The implications of this study highlight the strengths and weaknesses in the intellectual and emotional development of acquisition officers. Though fostering some elements of Clausewitzian genius is evolving and progressing, the pace and focus may not be adequate to meet the challenges and opportunities of the strategic environment.

#### Clausewitz on Acquisition

Although the nature of warfare has not changed, the strategic environment is altering the way in which wars will be conducted. Asymmetries in the wills, objectives, and capabilities of the contestants will make the intervention equation more difficult. As we move away from full-scale conventional war, these same asymmetric inputs will produce unpredictable outputs. To operate in this nonlinear setting, warfighters must become more flexible, adaptable, and innovative; they must be provided with the technological tools to make their job easier and more effective. In order to meet his operational brethren’s needs, the acquisition officer must also become more flexible and innovative. He must be able to overcome the intransigence of a stifling bureaucracy, quickly adapt to new technologies and the influences of industry, and reshape organizations and processes to more rapidly field military capability.

Carl von Clausewitz proposed that the nonlinearity of friction, chance, and uncertainty could be embraced through the development of genius. Adjusting organizations or processes will be ineffective if the human element is incapable of meeting the challenges of a changing environment. Through effective mentoring, new experiences and personal study are encouraged, and the development of logic, intuition, and initiative is fostered. The result is both members of the warfighting team becoming more readily adaptable to changes in their nonlinear environment.

### **Formal Learning**

Study and training are the lynchpins of intellectual development, and their format and composition will dramatically affect the results. Congress and the DoD realized that a problem existed in the effectiveness of the acquisition system. While process and organizations were scrutinized, they realized the most important component, people, was largely ignored. In passing the Defense Acquisition Workforce Improvement Act, Congress set out to create a specialized acquisition corps capable of dealing with the problems facing the research and development community. The DoD responded by instituting the Acquisition Professional Development Program; its purpose was to increase the level of academic and specialty experience. In part, the APDP program has been highly successful in ensuring that acquirers are well versed in their area of expertise. Although there are shortcomings, the academic study and exercises have proven to be valuable. APDP, however, has fallen short in giving the acquisition professional a broad perspective of the military and political environment. Equally lacking, is an effective method for passing on the lessons learned to younger officers and in providing them with the opportunity to experiment in a low-risk setting.

To varying degrees, PME schools offer an appropriate education designed for a specific level of officer. Through study, exercises, speakers, and trips, PME provides an enriching academic setting. Unavoidably, the wide diversity of experience and number of participants allows little opportunity to develop operational experience, intuition, and initiative. Additionally, the curriculum must target the lowest common knowledge-level denominator. Although the developer benefits from the big operational picture, there is a paltry effort made, aside from ICAF, to tie the equipping function to warfighting

capability. Even more distressing, these schools, which are meant to prepare leaders, are wholly inadequate in teaching students how to bring out the best in their subordinates.

### **Informal Learning**

Experience, self-directed study, and mentoring are intertwined elements falling under the rubric of informal learning. Warfighters, industry, and developers were adamant in their demand for operational experience in acquisition leaders. Logic, intuition, and initiative all grow from a foundation of knowledge. If part of that foundation is weak, namely operational empathy, the development of these three Clausewitzian elements will be limited. Additionally, if the value of the military acquirer is in representing the warfighter's interests with industry, then field experience is vital. If military representation is not required, then neither is the military acquirer.

The second component of experience is gained through the conduct of acquisition related activities. In general, all three communities were satisfied with the abilities of the developers; although, broader exposure to industry, and a variety of acquisition specialties, was encouraged. Equally important is an office environment that encourages the development of genius – an environment that is created through effective mentoring.

Mentoring is perhaps the quintessential element in developing genius, because mentors, like parents, greatly influence the development of subordinates. Through counseling and assistance, inspired education, and the opportunity to experiment and grow, the officer refines the tools of logic, intuition, and initiative. For some leaders, fostering the maturation of juniors is part of the duty of command, for others, it becomes an additional responsibility at best.

In recent years, the Air Force has chosen not to rely on gifted officers, but a system of institutionalized mentoring through the counseling program. This is a valiant attempt to refocus supervisor and subordinate into becoming more proactive in improving job performance. Unfortunately, the program is woefully inadequate in maximizing the benefits of a robust mentoring program. From one-way, semi-annual counseling sessions to inadequate mentoring training, the system attempts to put a bandaide over a gapping hole in the officer's development.

The enlisted mentoring program was not to be a template for officers, but as an example of a successful tradition in developing the whole person. The message of mentoring is clear: If the Air Force desires acquisition officers to reach their full potential and acquire the Clausewitzian elements of genius, a concerted, long-term commitment is required. Commitment translates into modifying field and senior grade schools, and increasing the level of mentoring education across the Air Force.

## **Implications of Findings**

The organization and process components of the acquisition trinity are experiencing high levels of attention and reform, but the “people” component is suffering from misdirected priorities and activities. What does this mean for the development and warfighter communities? Three related lessons must guide future development of the trinity.

First, process and organizational tools cannot be exploited with a bureaucratic and isolationist mindset. Developers, industry, and warfighters must combine their talents in a flexible management structure to effectively develop capability. “The impact of new technologies is to demand closer integration and “flattening” of organizations to provide better integration of the technologies themselves,”<sup>135</sup> stated *New World Vistas*. *The Advanced Battlespace Information System Task Force Report* added, “Together operational and technical communities are capable of making better judgement than either is alone.”<sup>136</sup> As the US continues to face more uncertainty about its strategic goals, budget, and roles and missions, the acquisition community must be able to rapidly adapt and support change.

Second, today’s environment dictates that organizations and processes must be modified to exploit the potential of the individual, not the reverse. Acquisition reform and organizational changes in product centers are attempting to create an adaptable process aligned by mission areas. This is a good start, but unless these changes leverage

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<sup>135</sup> Air Force Scientific Advisory Board, *New World Vistas Air and Space Power for the 21st Century*, Chapter IV, 15 December 1995, 68.

<sup>136</sup> Joint Chiefs of Staff, Director of Command, Control, Communications, and Computers/Director, Defense Research and Engineering, *Advanced Battlespace Information System Task Force Report*, Executive Summary, Volume I: May 1996, 5-2.

the power of the individual, their usefulness will be limited. In *A Primer on Decision Making*, James March insists that as rules become more complex, it is up to the individual to weigh alternatives and consequences in interpreting the rule's intent. The goal for leaders is to align incentives and personal identities with the rules and objectives to get optimum performance.<sup>137</sup>

In chapter 2, we discussed Gareth Morgan's metaphor of a bureaucratic organization's similarity to a machine. For more flexible organizations, capable of dealing with uncertainty, Morgan describes a "brain" metaphor. Operating as a brain, individuals within the unit all possess the "big picture," they are not tightly constrained by rules and goals, but are bounded by basic constraints.<sup>138</sup> The "brain" could not replace all of the responsibilities of running the acquisition machine, but it could be adopted as dynamic core within the process.

Third, creativity, adaptability, motivation, and effectiveness cannot be fully realized until the potential of the individual is unleashed. John Kolter describes the difference between current managers in bureaucracies and true leaders. Managers cope with complexity - leaders cope with change. Managers organize and staff to control a problem - leader's align views, and motivate and empower. Finally, leaders provide opportunities to succeed, fail, and learn.<sup>139</sup> The SAB echoed these thoughts stating more freedom and accountability was necessary for program managers to decide on cost and performance tradeoffs, and incentives for contractors.<sup>140</sup> The Air Force must shift from its bureaucratic, Cold War mentality and accept the nonlinear world of information and change. As Clausewitz predicted, the best way to embrace nonlinearity is through talented people.

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<sup>137</sup> James G. March, *A Primer on Decision Making* (New York, NY: The Free Press, 1994), 136-137.

<sup>138</sup> Gareth Morgan, *Images of Organization* (Newbury Park, CA: Sage Publications, 1986), 105-109.

<sup>139</sup> John P. Kolter, "What Leaders Really Do," in *Military Leadership*, Edited by Robert L. Taylor and William E. Rosenbach (Boulder, CO: Westview Press, 1984), 22-29.

<sup>140</sup> Air Force Scientific Advisory Board/Ad Hoc Committee, *Information Architectures that Enhance Operational Capability in Peacetime and Wartime*, February 94, 5.5.3.

## Developing Genius

Interviewees and literature offer valuable suggestion to improve the cultivation of genius in officers.

### Experience

Maj Miller summed up the prerequisites for the effective acquisition leader; “The ideal acquisition officer needs three qualities: technical expertise, skill in business management, and reasonable operations judgement.”<sup>141</sup> To develop these talents, he recommends obtaining technical expertise by training engineers and scientists to be program managers, learning business management through acquisition training and experience, and receiving operational judgement through an early operational tour.<sup>142</sup>

Lt Col Weigand agreed with Maj Miller, “Every lieutenant should have an operational tour, preferably specializing in the area that he will eventually acquire.”<sup>143</sup> Most of the interviewees also agreed that a single tour was not sufficient to gain enough experience to define requirements. Its purpose would be to ground the acquisition officer with an operational perspective at the beginning of his Air Force career. Follow-on tours, while valuable, were not mandatory, because it is not the acquirer’s purpose to be operationally current, only to be empathetic to warfighter concerns. The acquirer’s primary responsibility is to stay current with acquisition rules and regulations.

Capt Block added, “The biggest part of SPO emphasis is on CSP and the FAR. Most young officers don’t get to see industry operations. Education in industry is good, but it doesn’t have to be long or structured, just a two or three month TDY.”<sup>144</sup> He felt that by understanding the constraints, motivations, and business practices, the developer would be more effective in negotiating contracts and communicating desires to the contractor.

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<sup>141</sup> Maj Dave Miller, Maxwell AFB, AL, interviewed by author, 22 January 1998.

<sup>142</sup> Ibid.

<sup>143</sup> Lt Col Tony Weigand, Maxwell AFB, AL, interviewed by author, 22 January 1998.

<sup>144</sup> Capt Michael Block, Hanscom AFB, MA, interviewed by author, 27 January 1998.

## Study

The experts expressed the need for additional education emphasis in three areas: the “big” picture, acquisition specialty training, and innovation and flexibility.

To provide a broader perspective of the environment and the commander’s intent, Roger Nye suggested selecting books that match the supervisor’s philosophy, making them available to the troops, and making time for individual and seminar discussions. He generally found that officers with vision were avid readers and had a personal reading plan.<sup>145</sup> Lt Col Weigand, when asked how to better develop subordinates, recommended, “Educate them on their responsibilities to the Air Force and not the career field, develop an outside reading program, obtain advanced degrees early, and study the chief’s reading list.”<sup>146</sup> While this may seem like common sense, interviews suggested it is not occurring.

Maj Kreighbaum advocated studying past cases and lessons learned to refine specialty knowledge. Mr. Nesbit agreed, “Case studies are a good way to encourage innovation and provide the commander’s intent...base them on the Harvard Business School format.”<sup>147</sup> He went on to recommend looking at other service success and failures, conducting “brown bag” sessions at product centers, and having senior level personnel conduct lectures on acquisition reforms and current issues.<sup>148</sup>

Innovation and creativity is perhaps the most difficult element to foster in a bureaucratic setting. Mr. Henderson encouraged sending promising innovators to leading universities. The main target of the education should be on “the mid-level officers, because they are the ones who train and empower the younger folks.”<sup>149</sup> He further relates that MBA programs have found that you cannot create innovators. “Perhaps Air Force recruiting should be modified to bring in innovators.”<sup>150</sup> If it makes sense to private industry, there may be applicability for the Air Force.

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<sup>145</sup> Roger Nye, *The Challenge of Command: Reading for Military Excellence* (Wayne, NJ: Avery Publishing Group, 1986), 151.

<sup>146</sup> Weigand

<sup>147</sup> Robert Nesbit, Burlington, MA, interviewed by author, 6 January 1998.

<sup>148</sup> Ibid.

<sup>149</sup> James Henderson, Burlington, MA, interviewed by author, 30 December 1997.

<sup>150</sup> Ibid.

## Logic

Clausewitz insisted, “Theory then becomes a guide to anyone who wants to learn about war from books; it will light his way, ease his progress, train his judgment, and help him to avoid pitfalls.”<sup>151</sup> Likewise, the recommendations for the “study” element will form the logical foundation for the leader. Additionally, Gen Franklin agreed with Mr. Henderson’s previous comments about finding the right psychological make-up in an acquisition leader. “[You] need to look for attributes of leadership, experience, high tolerance for uncertainty, a questioning mind, and [a] results oriented [attitude]. Willingness to change is a critical ingredient.”<sup>152</sup>

## Intuition

Innovation, creativity, and flexibility are a product of the individual and his or her environment. Peter Rosen, author of *Winning The Next War*, studied peacetime and wartime development and came to the following conclusions: innovation is not a product of resources, in fact, it tends to be more successful with constrained resources. Innovation is cheap; production is expensive, so encourage many prototyping efforts. Finally, Rosen insisted that the focus of development should be on managing uncertainty, not capabilities.

To increase creativity, Kendall recommended slowing APDP specialization, because it limits the perspective of the officer. Constantly re-evaluate the influence of organization and process structure on innovation. Study the effects of the Reserve Officer Training Corps, Officer Training School, and the Air Force Academy on creativity. Above all, reward innovation.<sup>153</sup> Capt Block agreed that not enough time was spent teaching officers critical thought, nor was there time allocated to critical thought. He added,

If a person gets outside the box and challenges basic philosophies, they get their hand slapped. There needs to be more questioning, taking chances,

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<sup>151</sup> Carl von Clausewitz, *On War* (Princeton, NJ: Princeton University Press, 1984), 141.

<sup>152</sup> Lt Gen (ret) Charles E. Franklin, Nashua, NH, interviewed by author, 14 January 1998.

<sup>153</sup> Kendall, “The Creative Leader,” *Leadership and Command*, AU-24 (Maxwell AFB, AL: Air University Press, 1996), 308-09.

and irreverence. There's a fear of change in everyone, but we need to get people to accept change.

### **Initiative**

Similar to developing intuition, initiative is a combination of organization, process, and people. The key is making the first two adaptable by the third. In developing the "people" portion, industry is investing time and treasure to maintain competitiveness in today's market; Hitachi Corporation is one example. Hitachi has created a manager development school whose objectives are to develop an understanding of the corporate management concept; to acquire entrepreneurial spirit and innovative thinkers; to provide an awareness of world politics, culture, religion, and economics; to unify opinions and a sense of direction; and to develop well-rounded business skills.<sup>154</sup>

To create a more productive working environment, Lt Dyer recommended smaller, flatter organizations for better information flow and adaptability. He encouraged supervisors to support initiative in subordinates, and keep an open mind to be better prepared to take the initiative.<sup>155</sup> Finally, Martin van Creveld advocated moving decisions down to the lowest level, creating self contained units, developing a regular reporting system, establishing a rapid inquiry capability, and maintaining informal information channels.<sup>156</sup>

### **Mentoring**

Mentoring is the final and most important element in the creation of Clausewitzian genius. Without effective mentoring, the officer's intellectual and psychological development will be stifled. The previous five elements should be embraced by the mentor and encouraged in his or her subordinates. Capt Kutrieb summed up his goals for mentoring:

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<sup>154</sup> T. Tanaka, "Developing Managers in the Hitachi Institute of Management Development," *Journal of Management Development*, fall 1989, 27-39.

<sup>155</sup> Lt Jason Dyer, Los Angeles AFB, CA, interviewed by author, 12 January 1998.

<sup>156</sup> Martin van Creveld, *Command In War*, Cambridge (MA: Harvard University Press, 1985), 270-273.

Explain the big picture of the program from strategy to tactics. Discuss the goals of the organization and help to prioritize what's important in the job. Take time to understand the subordinates through two-way communication. And, do things to show you care, like being available, seeking inputs, providing good feedback sessions, and making them [subordinates] feel comfortable with talking informally.<sup>157</sup>

Lt Col Francois scored high marks in facilitating officer excellence. For example, he spends time individually and in groups talking to his subordinates about the Air Force and career tracks. He hosts periodic pizza lunches to keep his people informed and listen to their concerns. He encourages his people to develop a professional reading program, and he demands acquirers think of themselves as part of the warfighting team. Finally, he fosters creativity by encouraging subordinates and providing a low-threat environment.<sup>158</sup>

### **Recommendations for Further Analysis**

Developing an effective mentor-training program must form the basis for any systematic development of genius. Until such time, we can only hope for the sporadic appearance of outstanding leaders. A better understanding of the value, structure, and conduct of mentoring is required. Specifically, an in-depth survey of acquisition, warfighter, and industry communities would refine the subjective conclusions drawn in this paper. Investigation into civilian mentoring and innovation lessons learned would also offer valuable insights. A complimentary investigation into military schools is required to identify their strengths and weaknesses. Last, an all-service study correlating top performers and their professional development may provide helpful ideas for an Air Force program.

### **Conclusion**

This study has been an investigation into why the acquisition system is not adapting more rapidly to the changing environment. Process and organizational reforms

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<sup>157</sup> Capt Joshua Kutrieb, Maxwell AFB, AL, interviewed by author, 20 January 1998.

have been exhaustively studied, but the development of the individual seems to be confined to developing bureaucrats, not leaders. Using the thoughts of the military master, Carl von Clausewitz, we attempted to broaden the definition of a leader. Surprising to some, Clausewitz's leader was faced with the same nonlinear influences that confront the leader of today. The results of this study indicate that the government and the Air Force are keenly interested in improving the individual, but their plans and implementation are misdirected. If the Air Force is truly interested in changing to deal with the future's chaotic challenges, they must reconsider their reliance on technology. History has repeated one essential truth since time in memoriam: humans will adapt to their environment and succeed. This is the lesson Clausewitz captured 150 years ago when he realized that only through genius will the military commander dominate. Clausewitz did not create a "set of instructions," but encouraged intelligent observation and action.<sup>159</sup>

*"First, an intellect that, even in the darkest hour, retains some glimmerings of the inner light which leads to truth; and second, the courage to follow this faint light wherever it may lead."*

Carl von Clausewitz  
*On War*

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<sup>158</sup> Lt Col Ken Francois, Los Angeles AFB, CA, interviewed by author, 4 February 1998.

<sup>159</sup> Martin Kitchen, "Political History of Clausewitz," *The Journal of Strategic Studies* 11(1988), 30-32.

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