REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

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1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
27-10-2010	FINAL	

4. TITLE AND SUBTITLE	5a. CONTRACT NUMBER
Developing Intuitive Decision-Making In Modern Military Leadership	5b. GRANT NUMBER
	5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)	5d. PROJECT NUMBER
Neil R. McCown, CDR, USN	5e. TASK NUMBER
Paper Advisor (if Any): N/A	5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)	8. PERFORMING ORGANIZATION REPORT NUMBER
Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207	

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)	10. SPONSOR/MONITOR'S ACRONYM(S)
	11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT

Distribution Statement A: Approved for public release; Distribution is unlimited.

13. SUPPLEMENTARY NOTES A paper submitted to the Naval War College faculty in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.

14. ABSTRACT

The ability to quickly draw upon experience to make intuitive, rapid decisions has significant utility for operational leaders, given the time-constrained, chaotic, and uncertain situations in warfare. Using intuition tempered by experience, leaders determine the best course of action by gaining an understanding of the essence of a situation. Framing the situation in this manner provides them an awareness which illuminates the nature of the problem to be solved, as well as a potential solution. Not only do leaders face an increasing number of external distractions while in command, they have few opportunities to obtain first-hand experience of leadership in war. To improve their ability to make rapid and effective decisions, leaders should accumulate vicarious experience through the critical analysis of historic military events.

15. SUBJECT TERMS

Rapid Cognition, Intuitive Decision Making, Problem Solving, Planning, Leadership

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON Chairman, JMO Dept
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED		22	19b. TELEPHONE NUMBER *(include area code)* 401-841-3556

Standard Form 298 (Rev. 8-98)

NAVAL WAR COLLEGE
Newport, R.I.

Developing Intuitive Decision-Making
In Modern Military Leadership

by

Neil R. McCown

Commander, US Navy

A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

27 OCT 2010

Abstract

The ability to quickly draw upon experience to make intuitive, rapid decisions has significant utility for operational leaders, given the time-constrained, chaotic, and uncertain situations in warfare. Using intuition tempered by experience, leaders determine the best course of action by gaining an understanding of the essence of a situation. Framing the situation in this manner provides them an awareness which illuminates the nature of the problem to be solved, as well as a potential solution. Not only do leaders face an increasing number of external distractions while in command, they have few opportunities to obtain first-hand experience of leadership in war. To improve their ability to make rapid and effective decisions, leaders should accumulate vicarious experience through the critical analysis of historic military events.

Introduction

> *The broadened range of situations future joint forces will confront,*
> *and their increased complexity, will put a premium on leaders at all levels*
> *who are able to respond quickly and flexibly to the unexpected. The quality of*
> *their leaders must be one of the universal advantages – if not the enduring*
> *advantage – of U.S. joint forces regardless of operational requirements.*

> Chairman, U.S. Joint Chiefs of Staff, "Capstone Concept for Joint Operations"

> *A good plan violently executed now is better than a perfect plan next week.*

> Gen George S. Patton, Jr.

Early in Operation Enduring Freedom, the Commander of Task Force 58, General

James N. Mattis, USMC, faced a difficult decision. An Army Special Forces officer, a

Marine Intelligence officer, and an assault unit leader provided intelligence indicating that

what appeared to be a wedding party was actually a group of terrorists. The information was

incomplete, and the window of opportunity to attack was short. Although many other

commanders would require a prolonged period of time to gather additional information or

reflect, the answer came in a flash to Mattis, then a one-star general. In 30 seconds, Gen

Mattis made the decision to order an attack. Later, after the validity of the targets had been

confirmed, an investigator asked Gen Mattis how much time he spent making the decision.

He replied, "about 30 years."[1]

The ability to quickly draw upon experience to make a rapid decision, as Gen Mattis

did in Afghanistan, has significant utility for operational leaders. Also referred to as *coup*

d'oeil, the importance of making quick and effective decisions based on intuition is not new

in the study of military leadership. First introduced by Carl von Clausewitz, the term was

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1. Center for the Study of Professional Military Ethics, "Ethical Challenges in Contemporary Conflict: The Afghanistan and Iraq Cases," *United States Naval Academy,* February 23, 2006, http://www.usna.edu/Ethics/Publications/MattisPg1-28_Final.pdf (accessed September 03, 2010).

defined as "the rapid discovery of truth which to the ordinary mind is either not visible at all or only becomes so after long examination and reflection."[2] From the French phrase meaning "the power of the glance," *coup d'oeil* refers to the ability to quickly visualize and understand the battlefield, to recognize the truth, to determine an appropriate course of action, and to exercise the moral strength to see it through.[3] Given the time-constrained, chaotic, and uncertain situations often confronting leaders in warfare, the development of *coup d'oeil* becomes imperative.

When subjected to these pressures, the human brain defaults to an intuitive decision-making style that is easier and more natural than analytical, methodical approaches.[4] Using intuition tempered by experience, leaders determine a suitable course of action by gaining an understanding of the essence of a situation. Framing the situation they face in this manner provides them an awareness which illuminates the nature of the problem to be solved, as well as a potential solution.[5] With an emphasis on accurate situational awareness, leaders' intuition clarifies the most important factors, the most feasible goals, and the most likely outcomes of their actions.[6]

Since the importance of the commander's intuition is clear, the process for developing that intuition becomes a significant concern. Leaders must accumulate experience that provides them a well-populated "database" in the subconscious mind, but numerous obstacles inhibit the modern military officer's effort to build that experience. Not only do leaders face an increasing number of external distractions while in command, they

2. Carl von Clausewitz, *On War,* edited by Michael Howard and Peter Paret, translated by Michael Howard and Peter Paret (Princeton, NJ: Princeton University Press, 1976), 142.

3. Ibid., 102

4. Gary L.Klein, *Sources of Power* (Cambridge, MA: MIT Press, 1998)*,* 3-44.

5. William Duggan, "Coup d'Oeil: Strategic Intuition in Army Planning," Carlisle Barracks, PA: Strategic Studies Institute, US Army War College, 2005, 9.

6. John F.Schmitt, "How We Decide," *Marine Corps Gazette,* October 1995, 18.

have few opportunities to obtain first-hand experience of leadership in war, so improving their ability to make rapid and effective decisions requires them to accumulate vicarious experience through the critical analysis of historic military events.

Key concepts

Several concepts are of particular importance in the study of rapid cognition and intuitive decision making. First, decision-makers that effectively employ their intuition do not require a methodical process involving a comparative analysis to provide an ideal solution. Instead, they quickly consider relevant factors, goals, and consequences to formulate a "good-enough" first solution that is workable, but not necessarily perfect. Recognizing that their decision may not be the best course of action, they are prepared to refine it at some point in the future, should that become necessary.[7] Not surprisingly, intuitive decision makers rarely utilize a methodical decision-making process as their primary means for obtaining a solution.[8]

Another particularly important aspect is that military operations are an especially appropriate setting for intuitive decision-making. Warfare is a unique environment, with ever-present constraints in time, space, and force combining with volatile, uncertain, complex, and ambiguous problems. This "fog" and "friction" of war exist in dynamic and continuously shifting conditions. Intuitive decision-making, which is much faster than analytical methods and relies on the commander's personal sense of the situation, is well-suited to cope with rapidly unfolding events which are subject to unquantifiable variables. Not only are the intuitive decisions made quicker, but research indicates that in certain cases, the intuitive decision maker consistently makes better decisions than powerful analytical

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7. Klein, *Sources of Power,* 15-44.
8. Schmitt, "How We Decide," 17.

decision-making methods.[9] Indecision or lengthy decision times, in a wartime setting, are

especially costly due to the potential for loss of operational tempo or of life. Rapid, intuitive

decision making skills are therefore at a premium in military conflicts.

Finally, intuitive decision making is a process occurring in the sub-conscious mind,

where the leader may not even be aware it is occurring. The mechanics of intuition happen

very rapidly, wherein the mind accesses small pieces of stored memories of experience to

recognize and identify patterns and behaviors observed in unfamiliar situations. A leader

achieves this recognition and identification by quickly deconstructing or "thin-slicing" those

patterns and behaviors and employing knowledge and experience, without knowing it is

happening.[10] Having assessed the situation in this manner, the commander further draws

upon knowledge and experience to mentally create parallels and simulations in order to

visualize possible outcomes and generate possible courses of action.[11] A leader next selects

an option from those alternatives to arrive at a decision.[12] Whether or not that decision is the

best course of action is immaterial, since as long as the decision is plausible, one may rapidly

act upon it.[13]

Since the process of "thin-slicing" exists in the sub-conscious mind, however, leaders

relying on it must be especially aware of its limitations. They may not recognize where their

first impression originates or fully understand its meaning, so those first thoughts may be

considered worthless and quickly dismissed. When compared to ideas from a known source

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9. Ibid., 18-19.

10. Malcom Gladwell, *Blink: The Power of Thinking Without Thinking* (New York: Little, Brown & Company, 2005), 23.

11. Klein, *Sources of Power,* 197-213.

12. David J. Bryant, "Rethinking OODA: Toward a Modern Cognitive Framework for Command Decision Making," *Military Psychology*, vol. 18, no. 3 (2006), 183.

13. R. J. Knighton, "The Psychology of Risk and its Role in Military Decision Making," *Defense Studies* 4, No 3 (Autumn 2004), 320.

produced through understood processes, ideas coming from a leader's intuition may appear weaker. For this reason, such ideas are often considered "fragile."

A commander's degree of trust in the intuitive decision making process is another important consideration. Leaders accustomed to utilizing slower, analytical methods for decision-making may be unwilling to depend on a relatively unknown method such as rapid cognition. On the other hand, leaders who trust their intuitive decision making abilities yet have inadequate or biased experience might employ it haphazardly, falsely believing their intuition to be sound.[14]

The need for intuitive decision making

Making faster, better decisions becomes increasingly important in light of the large amounts of information instantly available to commanders in modern warfare. Continuous technological improvements to information systems result in growing and accelerating streams of data, making the effective management and integration of that data a challenge that grows correspondingly. Information communicated from sensors, as well as from up and down the chain of command, can overload commanders and impede their ability to make decisions.[15] Subordinates, believing that if a small amount of information is good then a large amount must be better, are inclined to overwhelm leaders with nonessential details. Ready access to sophisticated information technology systems enable this saturation to occur.[16]

The underlying challenge associated with a high volume of data and information, which can overwhelm commanders, is separating what is relevant from what is irrelevant.

14. Gladwell, *Blink: The Power of Thinking Without Thinking,* 252.
15. Timothy L. Thomas, "Kosovo and the Current Myth of Information Superiority," *Parameters* 30, no. 1 (Spring 2000), 23.
16. Timothy J. Doughtery and G. Damon Wells, "The Deployed Commander's Information Band of Tolerance," *Field Artillery Journal*, (September-October 2006), 33.

Important information, when presented quickly and in large quantities, becomes indistinguishable from unimportant information.[17] Not knowing what is applicable to the situation then adds to the confusion and uncertainty surrounding a decision. A commander who is overwhelmed with conflicting or irrelevant information and unable to make effective decisions may be viewed as a vulnerability, hence subject to exploitation by an adversary.[18]

Clausewitz recognized the dangers of information overload, and asserted that "usually, of course, new information and reevaluation are not enough to make us give up our intentions: they only call them into question. We now know more, but this makes us more, not less uncertain."[19] Uncertainty is a fundamental and undeniable aspect of war, however, and exacerbating this phenomenon is the problem that "three quarters of the factors on which action in war is based are wrapped in a fog of greater or lesser uncertainty."[20] The prevalence of uncertainty in war, however, is at odds with the human tendency to seek certainty and choose options which will provide greater certainty. That tendency persists even if the utility of the more-certain option is lower.[21]

Rather than attempt to reduce the prevalence of uncertainty in war, an exceedingly difficult or impossible task, commanders may improve their own clarity of the situation and achieve better and more rapid decisions through intuitive decision-making. Doing so enables them to concentrate on the most useful information instead becoming distracted by an

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17. Demetrios J. Nicholson, "'Seeing the Other Side of the Hill': The Art of Battle Command, Decisionmaking, Uncertainty, and the Information Superiority Complex," *Military Review* 85, no. 6 (November/December 2005), 61.

18. H.R. McMaster, *Crack in the Foundation: Defense Transformation and the Underlying Assumption of Dominant Knowledge in Future War*, S03-3. Carlisle Barracks, PA: Center for Strategic Leadership, U.S. Army War College, November 2003. http://www.csl.army.mil/usacsl/Publications/S03-03.pdf (accessed 03 Sep 2010), 21.

19. Clausewitz, *On War,* 117.

20. Ibid*.,* 101.

21. Douglas J. Peters, LeRoy A. Jackson, Jennifer K. Phillips, and Karol G. Ross, "The Time to Decide: How Awareness and Collaboration Affect the Command Decision Making," in *Battle of Cognition*, by Alexander Kott, (Westport, CT: Praeger Security International, 2008), 196.

abundance of it. Focusing commanders' attention on the information necessary to act despite uncertainty, rather than on attempting to overcome it, is a fundamental tenet of intuitive decision-making as well as one of its greatest advantages.

Additional pitfalls to decision-making are the distracting effects of fixation and too-frequent attention shifting. In experiments, commanders attempting to manage simulated battles generally follow one of two patterns when new stressors were introduced. They either fixate on relatively small pieces of information, at the expense of all other information, or shift their attention so frequently that little information is fully understood. In both cases, commanders failed to grasp the bigger picture, and their loss of awareness of the situation adversely affected the outcome.[22]

Excessive collaboration also serves as a source of distraction. The interaction and exchanging of information with subordinates, peers, or higher headquarters can hinder or prevent effective decision making. In exercises, a commander's understanding of the adversary's disposition was observed to degrade as a result of collaboration.[23] With a growing amount of information available and improved access to systems enabling relatively easy two-way communication, however, future commanders will likely face the expectation for increased collaboration.[24]

Physiologically, greater cognitive loads directly affect the section of the brain that serves to maintain a person's focus, keep short-term memory, solve abstract problems, and control will power. Consequently, when exposed to greater cognitive loads in experiments, test subjects' ability to resist temptation was degraded, as well as their ability to function

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22. Ibid., 211.
23. Ibid., 206.
24. Gary L. Klein, Leonard Adelman, and Alexander Kott, "Enabling Collaboration: Realizing the Collaborative Potential of Network-Enabled Command," in *Battle of Cognition*, by Alexander Kott, 167-193, (Westport, CT: Praeger Security International, 2008), 168.

normally.[25] Commanders routinely face increased cognitive loads from distractions in warfare, which likewise impair their ability to resist temptation. Often, the strongest temptation is the pursuit of additional information, actual or perceived, which they may believe will lead to a better decision.[26]

For a leader adept at intuitive decision-making, on the other hand, the detrimental effects of distractions may be less significant. Such a leader would likely only focus on a simplified representation of the situation, which could solidify based on pre-existing familiarity with and initial information about the situation.[27] As with the mechanism for coping with uncertainty, coping with distractions requires the leader to use intuition to direct mental energy toward the information that matters most, rather than to dwell on the distractions themselves.

Example of rapid cognition in operational leadership

A vivid example of the effectiveness of intuition and rapid cognition, as well as its superiority to analytical methods, occurred during a 2002 war game entitled "Millennium Challenge 2002." Costing a quarter of a billion dollars and requiring over two years to plan, the purpose of the exercise was to test numerous new warfighting concepts. Concepts central to the war game were analytical problem-solving tools, including Operational Net Assessment and Effects-Based Operations, intended to enhance the decision-making process. Additionally, new and sophisticated computer systems would also be employed. Combined, these processes and systems would allegedly "lift the fog of war" for the Blue Team.[28]

25. Jonah Lehrer, "Blame It on the Brain," *The Wall Street Journal*, 26 December 2009, http://www.wsj.com/ (accessed 03 Sep 2010).
26. Peters, "The Time to Decide: How Awareness and Collaboration Affect the Command Decision Making," 205.
27. George E. Rector, "Leadership and Decisionmaking," *Marine Corps Gazette,* October 1995, 22.
28. Gladwell, *Blink: The Power of Thinking Without Thinking,* 108-110.

The Red Team, on the other hand, lacked access to those tools. Led by LtGen Paul van Riper, USMC (Ret.), the Red Team relied on its knowledge and experience to guide its decision-making. It suffered an attack on its electronic communication systems on the first day of the exercise, and its remaining electronic systems were subject to Blue Team monitoring. At the same time, Blue Team positioned an aircraft carrier near Red Team's coast, deployed thousands of troops to the region, and issued a demand for surrender.

On the second day of the exercise, however, the Red Team launched a surprise barrage of cruise missiles that sank 16 American ships and killed over 20,000 American personnel. Acting rapidly and decisively, Red Team decimated Blue Team before a shot could be fired in retaliation. The Red Team's hour-long attack destroyed the Blue Team fleet and achieved a swift victory.[29]

Analysis of the events leading to the defeat of Blue Team provides a useful look at the effectiveness of intuitive versus analytical decision making in warfare. Although the Red Team staff had methodically studied the situation and their alternatives prior to the outbreak of hostilities, their decision making style shifted once the war began. At that point, LtGen van Riper and his team embraced an intuitive approach, rapidly assessing and solving problems as they occurred.

Unable to rely on modern forms of communication, for example, the Red Team utilized older methods to exchange information. These methods, such as couriers and light signals, were slower and less efficient, but were highly effective and impervious to attack. To further limit the effects of the attacks on their communication infrastructure, Red Team headquarters limited their communication in a deliberate effort to create conditions for field commanders to employ their own intuition and initiative. Having clearly articulated his

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29. Ibid.

intent and guidance before the war, LtGen van Riper was confident that his subordinates would accomplish their missions, unencumbered by excessive communication with leadership.[30]

The Blue Team, on the other hand, focused on the large quantity of information streaming from their computer systems and depended exclusively on their analytical decision-making processes. As a result, the Blue Team essentially suppressed their intuition, preventing themselves from quickly visualizing and solving the problem. While the Blue Team was slowly attempting to interpret intelligence in order to issue orders to field commanders, the Red Team accomplished neither, yet acted so fast that the Blue Team could not respond.[31]

Developing intuitive decision making

Experience remains the critical factor in the development of pattern recognition, and in turn, rapid cognition and intuitive decision-making. Gaining the ability to quickly and accurately recognize patterns and behaviors requires a broad exposure to a variety of experiences, so intuitive decision-making has been referred to as "recognition-primed" and an "experienced-based" process.[32] Knowledge, which is used as an outline for appraising and integrating new experience and information, is defined as "a fluid mix of framed experience, values, contextual information, and expert insight."[33]

The types of knowledge and experience used as the basis for intuitive decision-making may be categorized into two broad groups. The first type, "explicit" knowledge, originates from formal information codified in books, manuals, and publications, and so

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30. Ibid., 124.
31. Ibid., 143-144.
32. Schmitt, "How We Decide," 18-19.
33. International Center for Applied Studies in Information Technology, "Intro to KM: Glossary of Knowledge Management (KM) Terms," http://www.icasit.org/km/intro/glossary.htm (accessed 03 Sep 2010).

forth. It is through the study of codified information that commanders may experience events indirectly, or vicariously, in order to build explicit knowledge. Leaders develop and internalize the second type, "tacit" knowledge, through the memory of their first-hand experience. Unlike explicit knowledge, tacit knowledge is characterized as informal and un-codified. The type of experience contributing to tacit knowledge is personal, and is gained through the direct exposure or participation in an event.[34]

It can be argued that in warfare, the tacit knowledge gained through actual experience in combat serves as the optimum way to develop strong intuitive decision-making abilities. This type of experience, according to Clausewitz, forms the "lubricant for general friction." Clausewitz further states, ". . . no soldier, whatever his rank, should wait for war to expose him to those aspects of active service that amaze and confuse him when he first comes across them. If he has met them even once before, they will begin to be familiar to him."[35] Although no argument is made regarding other ways to build familiarity and knowledge, the clear implication is that direct and personal experience is essential.

Realities of military service and modern warfare, however, make this requirement problematic. Despite ongoing conflicts in Iraq and Afghanistan, it is unlikely that many commanders serving in those theaters had the opportunity to gain significant exposure to the type of war being fought there prior to their deployment. In many instances, those commanders' most direct combat experience may have been during Operation Desert Storm, which was characterized predominantly by a quick employment of conventional forces against a symmetric adversary. Operations Iraqi Freedom and Operation Enduring Freedom,

34. Ibid.
35. Clausewitz, *On War,* 122.

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on the other hand, mainly involve prolonged counterinsurgency operations against an asymmetric adversary.

Although the enduring nature of warfare remains, the vastly different character of these conflicts diminishes the quantity of "transferable" personal experience and tacit knowledge. Those commanders' experiences in Operation Desert Storm therefore failed to sufficiently prepare them for the conflicts in Iraq and Afghanistan. The difficulty in gaining direct, relevant exposure to "those aspects of active service that amaze and confuse" consequently necessitates a reliance on vicarious experience and explicit knowledge to achieve familiarity with the adversary.

An additional advantage to utilizing vicarious experience and explicit knowledge is the ability to recognize or overcome bias. Although many types of bias can influence a leader, a particularly prevalent tendency is to develop an overly optimistic view of themselves, the situation, and their degree of control. Their overconfidence in themselves results from considering only the information which is most readily available, and can lead to an illusion of superiority. Exacerbating this effect is the tendency for the least-capable performers often to have the largest gap between their perceived capabilities and what they can actually achieve. Commanders also tend to believe that the outcome of a situation will favor them, and that their opponents will be less fortunate than they will. Finally, leaders often overestimate the amount they can control a situation, believing they can influence events which are subject purely to luck.[36]

This overconfidence bias would likely influence leaders experiencing a military conflict personally, but may be managed by leaders experiencing the conflict vicariously.

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36. Michael J. Mauboussin, "Smart People, Dumb Decisions," *The Futurist* 44, no. 2 (March-April 2010), 25.

Tacit knowledge reflecting biased first-hand experience would therefore adversely affect future intuitive decisions made in similar circumstances. If an important factor were overlooked during the first experience, for example, it could be expected that a future decision in a similar situation would overlook the same factor. Experiencing a conflict vicariously, however, provides the commander an opportunity to gain a multitude of diverse perspectives. Although those perspectives may contain biases, critical analysis can reveal them. A close study of the bias itself illuminates important characteristics of the witness or the environment which may enhance the commander's understanding of the event, as well as prepare the commander for potential bias influencing his decision making in a similar event.

Recommendations

> *Throughout the industrial age, the United States has relied upon its capacity for technological innovation to succeed in military operations, and the need to do so will continue. It is important, however, to broaden our focus beyond technology and capture the importance of organizational and conceptual innovation as well.*

Chairman, U.S. Joint Chiefs of Staff, Joint Vision 2020

One form of vicarious experience and explicit knowledge which is particularly relevant to the development of rapid cognition and intuitive decision-making is gained through the study of military history. Through the critical analysis of past military conflicts, commanders obtain a perspective on those conflicts which may have been impossible to obtain otherwise. Seen through the expert eyes of military historians, events transpiring during the course of a conflict and their consequences may be carefully examined. Many such events and consequences may have been unforeseen and impossible to predict for the participants. Through the careful study of the lessons from past conflicts, rather than the

exceptionally rare first-hand experience, leaders may develop vicarious experience which will guide their future decision-making in similar events.[37]

In the words of the former Commandant of the Marine Corps Gen Charles C. Krulak, however, "[s]imply reading history is not enough."[38] In order to build a useful foundation of vicarious experience on which to develop intuitive decision making skill, leaders must critically examine the relevant decision making processes that took place. Additionally, properly framing the context of the historic event requires the leader to establish a clear understanding of the forces influencing the decision maker, as well as other major actors. Gaining that clarity requires them to obtain an unbiased appreciation (or as close as possible to it) of the conflict, which consequently necessitates a study of a variety of credible sources. Leaders must closely consider external pressures, such as restrictions in the factors of time, space and force, as well as internal pressures, such as bias. A thorough analysis must include a look at any preconceived notions in the perspective of the historian documenting the event, and include as many alternate perspectives as are available.

A useful example illustrating the importance of intuitive decision making developed through the study of military history is the leadership of LtGen Harold G. Moore, USA (Ret.). LtGen Moore's flexible and adaptable decision making style, most notably as a LtCol in the Battle of Ia Drang Valley in Vietnam, demonstrated his superior ability to rapidly evaluate and adjust to the conflict despite significant uncertainty and being vastly outnumbered. Regarded as one of the most storied battles in American military history, his unit killed over six hundred North Vietnamese Army (NVA) soldiers while suffering only

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37. Immanual Kant, " The Project Gutenberg Etext of The Critique of Pure Reason," *Project Gutenberg,* July 3, 2007, http://www.gutenberg.org/cache/epub/4280/pg4280.html (accessed October 11, 2010).
38. Charles C. Krulak, "Cultivating Intuitive Decisionmaking," *Marine Corps Gazette*, May 1999, 19.

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seventy-nine losses. The book (and subsequent movie) *We Were Soldiers Once . . . and Young* chronicled his unit's heroic action.[39]

A critical element in the development of LtGen Moore's leadership was his heavy reliance on the lessons from past military conflicts. At every opportunity in his career in the Army, he carefully studied the art of war through military history, even going so far as to visit the battlefields where especially important events occurred. Through the close examination of the lessons learned from conflicts, he developed a deep understanding of the causes and effects of victories and defeats. His commitment to expanding his knowledge of warfare through the study of military history was so deep that he strongly encouraged his subordinates to do the same. Despite his lack of first-hand knowledge of the NVA prior to the Vietnam conflict, his study of their performance in past battles provided him a clear recognition of their formidable strength. This was an insight lost on many other commanders, but one that proved pivotal in his engagements with the NVA.[40]

To build leaders such as LtGen Moore in the modern U. S. Navy, Navy leadership must overcome the cultural challenges to cultivating it in future leaders.[41] Although a critical analysis of past conflicts provides an advantageous method to achieving this, the nature of its maritime warfare operating environment has caused the Navy to foster a unique leadership style developed through operational experience and on-the-job training. This paradigm created an organizational barrier to the institutionalization of leadership developed through explicit knowledge and vicarious experience.[42] The idea that leadership "just happens" due

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39. H.R. McMaster, "Adaptive Leadership: Harold G. "Hal" Moore," in *The Art of Command: Military Leadership from George Washington to Colin Powell*, by Harry S. Laver and Jeffrey J. Matthews, (Lexington, KY: The University Press of Kentucky, 2008), 211.
40. Ibid., 212.
41. Schmitt, "How We Decide," 19.
42. Christopher D. Hayes, "Developing the Navy's Operational Leaders," *Naval War College Review* 61, no. 3 (Summer 2008): 96.

to the abundant demands on the professional development of Naval officers moving forward through their operational assignments is the prevailing notion among leaders in the Navy.[43]

Even though Navy leadership recognizes that operational experience must combine with Professional Military Education (PME) during an officer's career, the existing PME Continuum is not structured around the development of intuitive decision making. Rather than focus on developing effective operational leaders in this manner, it instead focused on educating officers in joint operational theory.[44] Joint military theory is an undeniably important part of Navy PME, but military history must become the center of the PME Continuum in order to provide the explicit knowledge necessary for building intuitive leadership. Effectively facilitating this change requires that the Navy provide tools, such as an incentivized professional reading program combined with Video Teleconferences with military historians, to officers unable to attend a classroom for the interactive critical analysis of past conflicts. Ideally, the optimum career path in each Navy community would be modified to include time in a structured classroom setting for this purpose.

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43. Ibid., 77.
44. Jacob L. Shuford, "Commanding at the Operational Level," *Proceedings* (United States Naval Institute) 133, no. 5 (May 2007), 25.

Conclusion

Building vicarious experience through the critical analysis of past military conflicts is therefore an essential way to improve a leader's intuitive decision making ability. The need for this ability, which provides faster and better decisions, grows as the prevalence of distracting influences on modern military leadership increases. Those influences include the added uncertainty due to information overload and the degraded ability to focus due to increased cognitive loads. As LtGen van Riper demonstrated in Millennium Challenge 2002, properly employing intuitive decision making can lead to swift and decisive results. Developing the ability to make intuitive decisions requires accumulating experience, and although gaining first-hand experience of command in war may be important, operational leaders have few opportunities to obtain it. Furthermore, personal experience is likely subject to individual leader's biases, including the tendency to become overconfident. Through the careful study of military history, on the other hand, leaders may manage the influence of bias in order to develop their ability to make rapid and effective decisions. Therefore, incorporating this study into the career paths of Naval officers will equip them with the intuitive decision making ability needed to succeed in the volatile, uncertain, complex and ambiguous environment of warfare, and better serve the art and science of future operational command.

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