

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

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1. REPORT DATE (DD-MM-YYYY) 17-05-2004		2. REPORT TYPE FINAL		3. DATES COVERED (From - To)	
4. TITLE AND SUBTITLE How Critical Thinking Shapes the Military Decision Making Process				5a. CONTRACT NUMBER	
				5b. GRANT NUMBER	
				5c. PROGRAM ELEMENT NUMBER	
6. AUTHOR(S) Floyd J. Usry, Jr. Paper Advisor (if Any): Dr. Stephen Downes-Martin				5d. PROJECT NUMBER	
				5e. TASK NUMBER	
				5f. WORK UNIT NUMBER	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Joint Military Operations Department Naval War College 686 Cushing Road Newport, RI 02841-1207				8. PERFORMING ORGANIZATION REPORT NUMBER	
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 faculty of the NWC in partial satisfaction of the requirements of the JMO 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 A lack of Combatant Commander (COCOM) critical thinking in the Military Decision Making Process (MDMP) is a causal factor in military failure at the operational level. However, critical thinking can improve the MDMP of the COCOM. This paper analyzes the effects of critical thinking on the combatant commander's decision making process by: defining critical thinking; illustrating its impact on intuitive and analytical decisions; demonstrating barriers to critical thinking and proposing practical ways to use critical thinking in the MDMP. An historical vignette illustrates the effects of critical thinking on decision making in a major operation. The MDMP is a process and critical thinking is an enabler to that process. Frequently the MDMP solution is plagued by a lack of analytic depth, faulty assumptions, vague analysis and wishful thinking. Two common barriers to clear thinking are psychological and logical fallacies. This paper provides examples of both types of barriers. Critical thinking can improve the MDMP decisions resulting in a higher probability of operational success. Finally, the paper offers a starting point by proposing several critical thinking ideas to use in the MDMP.					
15. SUBJECT TERMS Critical Thinking, MDMP, Combatant Commander, Staff					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES 25	19a. NAME OF RESPONSIBLE PERSON Chairman, JMO Dept
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 401-841-3556

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**HOW CRITICAL THINKING SHAPES
THE MILITARY DECISION MAKING PROCESS**

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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: _____

17 May 2004

Abstract

A lack of Combatant Commander (COCOM) critical thinking in the Military Decision Making Process (MDMP) is a causal factor in military failure at the operational level. However, critical thinking can improve the MDMP of the COCOM. This paper analyzes the effects of critical thinking on the combatant commander's decision making process by: defining critical thinking; illustrating its impact on intuitive and analytical decisions; demonstrating barriers to critical thinking and proposing practical ways to use critical thinking in the MDMP. An historical vignette illustrates the effects of critical thinking on decision making in a major operation. The MDMP is a process and critical thinking is an enabler to that process. Frequently the MDMP solution is plagued by a lack of analytic depth, faulty assumptions, vague analysis and wishful thinking. Two common barriers to clear thinking are psychological and logical fallacies. This paper provides examples of both types of barriers. Critical thinking can improve the MDMP decisions resulting in a higher probability of operational success. Finally, the paper offers a starting point by proposing several critical thinking ideas to use in the MDMP.

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INTRODUCTION

“This is the biggest fool thing we have ever done...the bomb will never go off, and I speak as an expert in explosives.” -Admiral William Leahy, advising President Harry Truman on the impracticability of the U.S. atomic bomb project, 1945 (fallacy of appeal to authority).¹

At the operational level, the Combatant Commander (COCOM) makes decisions costing millions of dollars, affecting thousands of lives and having national security implications. The COCOM relies on his staff’s analytical Military Decision Making Process (MDMP) to make decisions affecting major operations. The operational level of war is complex and the human mind inherently struggles to deal with complex problems. Critical thinking is especially needed to deal with complex and novel situations that COCOMs face daily. Critical thinking applied to the staff’s decision making process increases the probability of successful decisions by minimizing errors in visualizing operations, assessing evidence, questioning assumptions, selecting alternatives, monitoring objectives, and knowing when to curtail analytical thinking. The MDMP is very as a tool to organize and display the results of analysis and thinking. Critical thinking is about how to think, while the MDMP is what to think about. A COCOM’s lack of critical thinking at the start of the MDMP is the first snowflake in an avalanche of failure. “Failure does not strike like a bolt from the blue; it develops gradually...as individuals attempt to solve problems, complicated situations seem to elicit habits of thought that set failure in motion from the beginning.”² The lack of critical thinking in the MDMP can have potentially disastrous results affecting plans from the tactical through

the national level. A lack of COCOM or staff's critical thinking in the MDMP is one causal factor in military failure at the operational level.

Success in the MDMP hinges upon integration of critical thinking from the beginning of problem solving. This paper analyzes the effects of critical thinking on the combatant commander and staff's decision making process. It defines critical thinking, illustrates its impact on decision making, demonstrates barriers to critical thinking and proposes practical ways to use critical thinking in the MDMP. An historical vignette illustrates the effects of critical thinking, or lack of, on decision making in major operations.

DEFINITION OF CRITICAL THINKING

What is critical thinking? Critical thinking is defined as a structured process involving reasonable and reflective thinking about ideas, concepts and beliefs focused on finding the truth.³ Critical thinking is also described as “thinking about thinking” or “thinking out of the box.” The purpose of critical thinking in the MDMP is to convert brainpower into combat power. As Army General William Depuy stated about the MDMP, “At the heart of the process, lies the mind of the commander.” It is a two-part process involving thinking about our thinking and evaluating the results (good or bad) of that thinking. The intent behind critical thinking is to overcome the genetic and acquired impediments in our own capacity to think rationally. It is a means to achieve a higher probability of operational success although the use of critical thinking does not guarantee success.⁴ It is a self-conscious effort to at least recognize our own bias, paradigms or mindsets and the consequential effects on solving military problems. “Real improvement can be achieved; however, if we understand the demands that problem solving places on

us and the errors that we are prone to make.”⁵ Critical thinking uses the word “critical,” not to imply finding fault as in someone always making negative comments, but “critical” in the sense of evaluation or judgment. It is not cynicism or never believing anything, but strives for open mindedness and believing where the evidence leads. Neither is it endless wavering over a decision. The depth of critical thinking is tailored to the time available.⁶ History is illustrative of operational commanders and staffs that analyzed all the available information, consulted experts, and made decisions, which turned out to be wrong because they were incapable of challenging their own perception of reality. “Our brains are not fundamentally flawed; we have simply developed bad [thinking] habits” that can lead to poor decisions and ultimately affect the outcome in the theater.⁷

ROLE OF CRITICAL THINKING IN THE MDMP

What is the role of critical thinking in military analytical and intuitive decision making? The MDMP is a tool for problem solving. If thinking is flawed then decisions are skewed and the problem is not solved. Instead poor decisions create more problems. Therefore, critical thinking increases the probability of solving the military problem through better choices and decisions. There are two type of decisions made in the MDMP, intuitive and analytical.

In a fluid fast-paced tactical battlefield situation, intuitive decision making is the gut level response in time sensitive situations. The human brain is “hardwired” to make intuitive decisions.⁸ Hardwired means that our innate neural structure is fixed and predictable, much like the internal hardware in a computer is fixed. Approximately 90% of all decisions are intuitive and approximately 85% of decisions are made in less than a minute.⁹ The other 10% of decisions that require analytical thinking are the ones which

most people lack the skills to accomplish. The problem with relying only on intuitive decisions is that the decision maker does not consider alternatives and can be blinded by mindsets. Additionally, the decision maker frequently “satisfices” by choosing the first Course of Action (COA) that seems satisfactory or good enough, instead of the optimal COA.

Conversely, analytical decision making is conscious reasoning based on breaking down a complex problem into its component parts for closer inspection and usually involves a systematic procedure.¹⁰ For the COCOM and staff, analytical decision-making is frequently used: when time is available; with novel and ambiguous situations; to justify the decision; when there is a conflict among people with different concerns; and when an optimal COA is required.¹¹ A common criticism of analytical decision-making is it leads to “paralysis through analysis.”

“While the two approaches to decision making are conceptually distinct, they are rarely mutually exclusive in practice.”¹² A good decision-maker can make judgments by oscillating along a continuum between intuition and analysis.¹³ Critical thinking illuminates the pitfalls of human thought in both decision-making approaches. Therefore critical thinking should be used to weed out mental errors in intuitive decisions when the time is available and when a little time spent thinking will save much more time in execution. Also, COCOM staffs should habitually exercise critical thinking under the stress of constrained time to increase their speed of analytical decisions relative to the enemy.¹⁴ Critical thinking does not interrupt or slow down decisions, rather it is continuous. Decisions can be made while continuing to critically think through the MDMP. Critical thinking is an enabler to the MDMP. While the MDMP is a standardized

process emphasizing what to think about, the quality of the MDMP decision is actually more dependent on critical thinking or the lack of. The MDMP step-by-step process can degenerate into a fill-in the blanks exercise using old familiar patterns of “answering the mail.” The use of the MDMP does not replace thinking, it only structures thinking. However, the ability of a staff officer and commander to think, reason and decide is their most valuable weapon, especially when confronted with new or complex situations. A combatant commander deals with military, economic, political, diplomatic, historical and many other aspects of his theater.¹⁵ Critical thinking is a tool for confronting the many dilemmas and paradoxes in today’s security environment characterized by extremism. It is a means for the COCOM to analyze and decide how to defeat today’s enemy, intent on fighting the U.S. on their asymmetric terms. “To broaden one’s perspective requires considerable mental effort. Operational thinking is not an innate trait, but must be acquired by the systematic and untiring efforts throughout the career....”¹⁶

PSYCHOLOGICAL AND LOGICAL BARRIERS TO CRITICAL THINKING

If critical thinking is so important, what are the barriers preventing COCOM staffs from using it? There are two categories of barriers, which impede clear reasonable thinking inside the MDMP: 1) psychological impediments and 2) logical fallacies.¹⁷ As Richard Paul, Director of the Center for Critical Thinking stated, when a person does not exercise critical thinking in a structured manner then the mind is “confused and takes things for granted without analysis or questioning, leaps to conclusions without sufficient evidence...wanders into its own prejudices and biases, egocentricity and sociocentricity.” Commanders and staff officers are byproducts of a rigid and tight knit group with similar values, beliefs and mindsets. Despite past education, experiences or professionalism, they

are susceptible to acquired psychological and logical impediments. Therefore, alternative mindsets are needed to steer clear of mental ruts to create unrestricted thinking in the MDMP. “Biases, impressions and assumptions also play a great role in the commander’s decision-making process. The evaluation of all that information is the responsibility of the staff...”¹⁸

Psychological Impediments. Most people are predictably irrational because of inherent and acquired biases and mindsets. While no one can completely eliminate these nonrational impediments to reasoning, “any more than a leopard can change its spots, understanding how they work can help us reduce the harm they do...”¹⁹ Psychological impediments to critical thinking include: loyalty, herd instinct, and groupthink; prejudice, stereotypes, and scapegoats; wishful thinking, mirror-imaging, and self deception; and rationalization and denial.²⁰ These impediments lead to skewed perceptions of the world. Perceptions of the real world are analogous to how a pilot perceives the world when flying an aircraft on instruments in cloudy weather. Frequently, a commander or staff relies on perceptions (a “seat of the pants feel”) despite what the “real” world is telling them. A pilot trusts his flight instruments, instead of trusting his innate instinct, to maintain an upright attitude. To do otherwise invites an immediate crash. Instrument flight is analogous to critical thinking. A pilot relies on flight instruments for orientation and the correct perception of his flight attitude. A commander/staff relies on critical thinking as a check and balance to their perceptions.²¹ How a commander sees the world is based on his mindset.

A mindset is the distillation of accumulated knowledge about a subject into a single coherent framework through which people view the world. It is a consolidation of

all biases about a particular subject.²² “People acquire mindsets about everything— friends, relatives, neighbors, countries, religions, TV programs, authors, political parties, businesses, government agencies, etc.”²³ A mindset is neither good nor bad. It is unavoidable and resists change.²⁴ Mindsets are “immensely powerful” which enable people to make rapid judgments about complex problems. They are indispensable to cope with the events of everyday life. The flip side of a mindset is its extraordinary power to distort the perception of reality. People are not aware of their existence or of their effects, good or bad on analysis, conclusions and recommendations.²⁵

Unless commanders and staff officers carefully analyze their own thinking, they will not be aware of how their mindset can poison the MDMP. Commanders and staff officers must have the courage to honestly challenge biases, mindsets, assumptions and previous decisions in working through the MDMP. To do this requires moral courage and character to understand why we think the way we think and to be willing to change our thinking if original perceptions were wrong.²⁶ Although the MDMP can channelize the thought process, combatant commanders should be more interested in divergent thinking than in standardizing thinking.

In general people exhibit seven (not all inclusive) broad and predictable behaviors. These behaviors influence decisions whether the decision is buying a car, selecting a mutual fund or deploying troops to Iraq. These behaviors are what commanders and staff officers bring to the MDMP. Some of these behaviors lead to irrational actions largely based on intuitive thinking. Critical thinking is the catalyst to recognize and overcome irrational thinking and behavior. Many plans fail because the irrational element destroys the coherence of the plan. Sun Tzu’s admonition to “know

yourself’ enables commanders and staffs to understand hidden irrationality and to take action to fix it. The following seven behaviors act as a lens that can distort the COCOM’s view of the world. The COCOM may think his vision of his operational environment is 20/20, although in reality it is much worse—20/100, for instance.

1) People are creatures of emotion and emotions/feelings influence every thought and decision they make. If emotions overwhelm reason, then decisions should be postponed.²⁷ Service biases are one of the strongest emotional bias. Any adulation or criticism of a service should raise a red flag which requires critical thinking about what is being proffered. For instance, if someone tells a Marine that the USMC has little value to the U.S. and its people and equipment should be integrated into the Army, which is likely to elicit a strong emotional rebuttal. Conversely, people cannot make good rational decisions without at least a twinge of emotion attached to the decision.

2) Our minds are hardwired to take unconscious mental shortcuts, which they are not even aware of. They cannot stop mental shortcuts, nor should they want to, any more than they can tell the stomach to stop digesting food.²⁸ For example, if you have ever driven from your place of employment to home and upon arriving suddenly realized that you did not remember the trip, then you have experienced a mental shortcut.

3) We see the world in patterns, which the mind recognizes based on past experiences. For instance, in 1941, during the Japanese bombing of Pearl Harbor “people all over Oahu couldn’t believe that what they were seeing was an enemy attack...it was the Army fooling around...anything but the believable truth.”²⁹ The mind strongly expects to see a familiar pattern and fills in the gaps to finish the pattern.

4) People instinctively rely on, but are susceptible to biases and mindsets. People could not function without biases and mindsets because they enable repetitive functions without thinking about how to do them.³⁰ The danger arises when people “blindly” follow their mindsets, without questioning them to see if they are still truthful. In the combatant commander’s arena of complex, ambiguous issues, the questioning of mindsets and assumptions should be done to “test the waters” of what is still valid and what has changed.

5) People have an insatiable need to find explanations for everything regardless of whether the explanations are accurate.³¹ In military staffs, this behavior frequently surfaces as mirror-imaging when the staff runs out of hard evidence and fills in knowledge gaps by assuming that the enemy is likely to act in a certain way because that is how the U.S. would act under similar circumstances.³² Frequently an enemy leader’s perceived “irrational” behavior means the staff officer does not fully understand the enemy’s mindset and has started to mirror-image U.S. values into the enemy situation.

6) We believe in evidence that supports our beliefs while devaluing evidence that does not.³³ This is typically seen when a staff “falls in love with their plan” or a service defends their “rice bowl.” Instead of seeing cracks in the plan (or rice bowl), they continue to confirm its suitability. Evidence which supports a service belief is gathered and contrary evidence is discredited. Beliefs become like personal property; they are worth defending even if the belief can be proven irrational or wrong.³⁴

7) Additionally, another roadblock to critical thinking is social acceptance. People feel attacked when their thoughts or work are challenged or critiqued. Numerous human dynamics can “cloud objective analysis such as differing but unstated assumptions,

conflicting analytic approaches, personality differences, emotions, debating skills, the influence of rank/seniority or the compulsion of some staff officers to dominate and control the process and outcome.”³⁵ Additionally, the command climate can nurture or stifle critical thinking. Its use must start at the top and flow down through the chain of command. Critical thinking can be stifled at any level if it diverges from the “boss’s” ideas or the “that’s how we’ve always done it here” attitude. The habitual use of critical thinking combined with tact can make critical thinking acceptable at the individual and organizational level.

Lastly, perhaps the most significant psychological barrier to critical thinking is mental effort. Stress, pressure, operations tempo, fatigue and a lack of time can cause a staff to default to intuition, satisficing and unrealistic assumptions in the MDMP. As Henry Ford said, “Thinking is hard work, which is why so few people do it.”

Logical Fallacies. Critical thinking involves wrestling with logical fallacies because people are not hardwired to think logically but intuitively. Reasoning is good when the premises are believable, when all relevant information has been considered, and when the premises provide good grounds for accepting the conclusion. Reasoning is fallacious (bad) when any of the three requirements are not met.³⁶ Authors Kahane and Cavender in *Logic and Contemporary Rhetoric* identify 23 examples of fallacious reasoning that can infect the MDMP. These reasoning fallacies are disguised in everyday life unless an individual applies critical thinking to root out and expose their potential harm. Some of the more common logical fallacies seen in the MDMP include appeal to authority, inconsistency, straw man, slippery slope, irrelevant reason, questionable analogy or questionable statistics.³⁷ “The analytical and reasoning process cannot be lost

in time of stress and adversity.”³⁸ Additionally, staffs can apply the seven universal intellectual standards to check the quality of their reasoning. They are clarity, accuracy, precision, relevance, depth, breadth and logic.³⁹ “In war commanders are constantly faced with great issues...so their decisions should be reached only after careful analysis and faultless logic.”⁴⁰

A COCOM or staff officer who has the most experience in a subject area, strong personality characteristics or very strong beliefs is most likely the same person who is the last to see what is really happening when events take a new and unexpected turn. They may be more susceptible to succumbing to or creating their own psychological and logical barriers to an effective military decision. Despite the best intelligence, information, intellect and intent, “our minds can mislead us, giving us a false understanding of events and circumstances and causing our analysis of events and circumstances to be flawed.”⁴¹

Staff officers and combatant commanders who turn on critical thinking when needed, like a searchlight, can see through the fog of their own thinking and recognize psychological and logical impediments which inhibit the MDMP. The motive for incorporating critical thinking into the MDMP is to at least recognize these hardwired behaviors and make a conscious choice to balance normal behaviors with the real world. Critical thinking evaluates the thought processes as well as the conclusion arrived at from those thought processes. In other words, when faced with a potential decision a person exercising critical thinking should begin to hear multiple voices inside his head. Those voices are debating the internal personal bias and mindsets as well as the substance of the

issue. But too often, people are guilty of only hearing what they want to hear or seeing what they want to see.

If a person has expectations or mindsets that they are not aware of, they tend to see what they want to see. This is a common mistake and is often cited, in hindsight, for poor decisions and military failures. An example of a failure to anticipate which was created by psychological and logical impediments is exemplified in JTF Somalia and TF 156/158's (Task Force Ranger) ill-fated mission to capture Farah Aideed in Mogadishu Somalia in October 1993. Aideed believed that creating casualties was a critical factor to achieve success against a technically superior U.S. force.⁴² Therefore, he focused his ground forces on shooting down a U.S. helicopter to gain a political and military advantage.⁴³ However, TF Ranger believed the probability of a helicopter being shot down was low and had a marginal contingency plan for such possibilities, despite having received small arms fire and one helicopter hit with an RPG on a previous mission.⁴⁴ But, on 3 October 1993, Aideed's Somali National Alliance Forces (SNA) shot down two Special Forces MH-60 Blackhawks during a heliborne raid to capture Aideed.⁴⁵ TF Ranger's false perception of the SNA's incompetence led to several costly miscalculations. The Task Force perception of enemy capabilities had been waved off. The Task Force flew the same predictable objective area profile on the previous six missions which consisted of hovering flight. Moreover, the mission on 3 October was flown in the daytime in the most dangerous area of Mogadishu, the Bakara Market. This further raised the probability of hit from small arms and RPG fire. The commander and staff did not understand the resolve of the Somali warriors, the capability of U.S. forces to defend themselves during a Somali counterattack or the military options available to

plan and organize a U.S. reaction force for a ground rescue. The TF Ranger commander focused on friendly forces and did not consider how the SNA could counter the Task Force's weapons and tactics. The JTF and TF Commander were victims of their mindsets. The TF Commander's psychological mindset about their invincibility and their logical fallacy (rationalization) about the enemy's surface-to-air incompetence led to their ambush. Most likely, the JTF and TF stereotyped the SNA. Despite their professionalism and good intentions, Special Operations professional pride (egocentricity) created a wedge which widened the split between the Task Force, the JTF force and the true capability of the SNA. Previous mission success reinforced their mindset and assumptions. Hence, they failed to anticipate SNA adaptation to the TF's conduct of operations. The TF and JTF failed to maintain a critical thought process as their operations evolved. The failure to anticipate Aideed's military capability and resolve eventually cornered TF Ranger into a box which required an 18 hour heroic rescue effort and which resulted in 18 U.S. deaths and over 80 wounded U.S. soldiers.⁴⁶ The strategic and operational end result was the resignation of Secretary of Defense Les Aspin and the U.S.' subsequent retreat from Somalia.⁴⁷

RECOMMENDATIONS: APPLYING CRITICAL THINKING TO THE MDMP

Since critical thinking can enhance the MDMP, how do commanders and staffs begin to use it? Combatant commanders will benefit from critical thinking rather than applying old solutions to new problems. Thinking about thinking is a realization that the greatest computer ever invented, the human brain, is subject to programming errors which cause a skewed perception of the world, according to how we want to see it, not how it really is. To become proficient at critical thinking, it should become a daily habit

like exercise. Commanders and staffs can practice critical thinking in everyday problems: buying a car, deciding on children's college, financial investments, career choices, reading the Early Bird, After Action Reviews, mission planning and debriefs, developing OPLANS, war games, etc. However, just talking about critical thinking will not improve the MDMP. To see a real performance improvement requires practice and a willingness to change a mindset over time, if needed.

The following ideas are a starting point for critical thinking in the MDMP (or personal life), organized from broad to narrow.

Thinking in Time.⁴⁸ Good combatant commanders do not live in the present. They must have a vision of the future that spans yesterday, today and tomorrow. A tool to connect the dots of time is a scenario. Scenarios help commanders recognize plausible outcomes and how to act and plan better in advance.⁴⁹ Scenarios do not attempt to predict the future; rather, they attempt to bound the future. Mindsets distort reality. "Scenarios give...[decision makers] something very precious: the ability to re-perceive reality."⁵⁰ They serve two purposes: anticipating risk and discovering strategic options previously unaware of.⁵¹ Scenarios are a form of critical thinking at the operational level. They attempt to take separate military, economic, political, social and historical issues and tie them together to see where relationships exist. Scenarios encompass issues that are known, issues that are fairly predictable, and other issues which are critical, but uncertain. These critical issues are the critical assumptions about the future that can create a crisis if proven correct or incorrect. All of these scenario issues must be followed over time by thinking critically about them. The following three ideas bolster the concept of "thinking in time."

Pursuing Perspectives. Entrenched mindsets lead to narrow or parochial thinking and solutions that do not fit, are not robust or miss other potentially good solutions. Narrow perspectives are analogous to poor vision. Thinking is driven by the strong desire for consistency, economy, understanding and closure. Several techniques to pursue different perspectives are: “thinking backwards,” “devils advocate,” “brainstorming,” “visualization,” and “analogy mapping.” Pursuing perspectives exposes flawed assumptions, wishful thinking, rationalization, overconfidence, groupthink, etc. This technique prevents the staff from being anchored in the present and elicits reasoning to explain how an unlikely event might actually happen.

Ready Reasoning. Know yourself. Staff officers should “microscope” their own thoughts to uncover psychological and logical fallacies in their reasoning, decisions and plans. Explaining opinions or assumptions is a means of judging evidence and determining its strength or weakness. In preparing for war, staffs do not always have complete knowledge of the situation. Uncertainty will always be present. Staffs can reason to fill in the gaps with critical thinking. Checking premises against conclusions will help mitigate illogical reasoning. In other words, does the conclusion fit well with the premises and vice versa? Being aware of violating these standards will lead to critical thinking.

Quick Questions. Too often, staffs impulsively jump into mission analysis before they are ready and either solve the obvious problem, the easy problem, the wrong problem or attack the problem with a hammer when a screwdriver is needed.⁵² Planners can begin with a barrage of questioning to define, work thorough and solve the right problem. The critical mind is a questioning mind. “Enlightening questions are the point

of departure for every method we propose, questions that shed light almost regardless of the answers.”⁵³ Questions define the direction and agenda in a COA development, analysis or comparison. Questioning can help identify assumptions in the COA that, if proven wrong, would cause the COA to collapse. If nothing can be thought of to disprove a key assumption, then a mindset may be so entrenched that the staff is blind to conflicting evidence. Questions combined with the universal intellectual standards are the quickest way to expand a mindset that is bogged down in parochial problem solving. Develop and apply a standard set of questions to ask when faced with uncertainty, an apparent lack of critical thinking or thin analysis. Questions force staff officers to explain their thinking, not just their conclusions. As Secretary of Defense Donald Rumsfeld stated in *Plan of Attack*, “I tend to ask a lot of questions of the people I work with and I tend to give very few orders...there’s so much that I don’t know, that I probe and probe and probe and push and ask.”

Competing Courses of Action (COA). This technique can be used to develop and evaluate COAs that are assumed to be true unless evidence proves it false. This differs from conventional intuitive analysis in that it focuses on all key evidence (governing factors, critical events, or key assumptions, for example). In other words, the optimal COA is the one with the “least inconsistent evidence *against* it, not the one with the *most* evidence for it.”⁵⁴ Each piece of evidence is evaluated strictly against the COA, to determine whether the evidence is consistent or inconsistent with the COA. Frequently, evidence that confirms COAs also confirm multiple other COAs, thereby that evidence does not distinguish individual COAs from each other. The strength in this method is its

function to disprove, not prove a COA. This technique increases the odds of getting the optimal answer.

CONCLUSION

Commanders and staffs should model and encourage habitual critical thinking because a lack of critical thinking in the MDMP is a causal factor in military failure at the operational level. Frequently, the MDMP solution is plagued by a lack of analytic depth, faulty assumptions, vague analysis and wishful thinking. However, critical thinking can be used to sort through complex, incomplete and ambiguous information when using a structured analytical process and introspective thinking. Critical thinking is a means to improve the quality of analytic and intuitive decisions. It not only evaluates possibilities, it generates new possibilities by challenging individual and group thinking. Recognizing predictable mental barriers is a first step in weeding out errors in the MDMP. A commander should “open the door” for critical thinking in his command to overcome organizational, service or personal resistance. The end result will be a better process and decisions. Applying the proposed practical recommendations to thinking within the decision process can increase the probability of successful military decisions. Examining the weaknesses or potential flaws in thinking is a basic step in improving critical thinking. Just pointing out a potential flaw as this paper attempts to do, can benefit a combatant commander and his staff, even if no solution is apparent. The uncertainty may prompt additional questioning and openness to new thinking. That is the start of critical thinking.

“Think left and think right and think low and think high. Oh, the thinks you can think up if you only try!” Dr. Seuss⁵⁵

NOTES

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- ¹ Christopher Cerf and Victor Navasky, The Experts Speak (New York: Villard Books, 1998), 271.
- ² Dietrich Dorner, The Logic of Failure (Massachusetts: Addison-Wesley, 1996), 10.
- ³ Kenneth Watman, "Critical Thinking," Lecture, U.S. Naval War College, Newport, RI: 18 March 2004.
- ⁴ Ibid.
- ⁵ Dorner, 7.
- ⁶ Watman.
- ⁷ Dorner, 7.
- ⁸ Watman.
- ⁹ Morgan D. Jones, The Thinkers Toolkit (New York: Three Rivers Press, 1998), xii; Gary A. Klein, "Strategies of Decision Making," Military Review, (May 1989): 58.
- ¹⁰ United States Army Research Institute, "Study Report 95-01, Critical Factors in the Art of Battlefield Command" (Alexandria, VA: November 1994), 32.
- ¹¹ Klein, 61.
- ¹² Department of the Navy, Marine Corps Doctrinal Publication Six Command and Control, MCDP-6 (Washington, DC: 4 October 1996), 111.
- ¹³ Christopher R. Paparone, U.S. Army Decision Making: Past, Present and Future," Military Review, (July-August 2001): 49.
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- ¹⁵ Milan N. Vego, NWC 1004 Operational Warfare (Newport, RI: Naval War College, 2000), 604.
- ¹⁶ Ibid., 569.
- ¹⁷ Howard Kahane and Nancy Cavender, Logic and Contemporary Rhetoric (California: Wadsworth Publishing Company, 1998), viii.
- ¹⁸ Vego, 604
- ¹⁹ Kahane and Cavender, 110.
- ²⁰ Ibid., v.
- ²¹ Watman.
- ²² Jones, 31.
- ²³ Ibid.

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- ²⁴ Richards. J. Heuer, Jr. Psychology of Intelligence Analysis (Washington, DC: Central Intelligence Agency 1999), 6-1.
- ²⁵ Ibid., 22-33.
- ²⁶ Watman.
- ²⁷ Jones, 13.
- ²⁸ Ibid, 17.
- ²⁹ Ibid., 19.
- ³⁰ Ibid., 22.
- ³¹ Ibid., 34.
- ³² Heuer, 4-12.
- ³³ Jones, 38.
- ³⁴ Watman.
- ³⁵ Jones, 6.
- ³⁶ Kahane and Cavender, 6.
- ³⁷ Ibid., 40.
- ³⁸ Vego, 565.
- ³⁹ Richard Paul and Linda Elder, Critical Thinking (New York: Prentice Hall, 2001), 127
- ⁴⁰ Vego, 603.
- ⁴¹ Jones, 46.
- ⁴² James O. Lechner, "Combat Operations in Mogadishu, Somalia Conducted by Task Force Ranger," (Fort Benning, GA: United States Army Infantry School, 1994), 28.
- ⁴³ "Ambush in Mogadishu." Public Broadcasting Service. September 1998.
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- ⁴⁴ Armed Services Committee The United States Congress, "U.S. Military Operations in Somalia," in Hearings Before the Committee on Armed Services United States Senate, One Hundred Third Congress (Washington D.C.: U.S. Government Printing Office, 1994), 375.
- ⁴⁵ Ibid., 10.
- ⁴⁶ Mark Bowden, Blackhawk Down (New York: Atlantic Monthly Press, 1999), 354.
- ⁴⁷ Bowden, 335.
- ⁴⁸ Richard Neustadt and Ernest May, Thinking in Time (New York: The Free Press, 1986), 247.

⁴⁹ P.H. Liotta and Timothy E. Somes, "Strategy, Security and Forces 3-3 The Art of Reperceiving: Scenarios and the Future," (Newport, RI: Naval War College, 1997) 2.

⁵⁰ Pierre Wack, "Scenarios: Shooting the Rapids; How Medium Term Analysis Illuminate the Power of Scenarios for Shell Management," Harvard Business Review, (November-December 1985): 140.

⁵¹ Liotta and Somes, 3.

⁵² United States Army Research Institute, Technical Report 1037 Practical Thinking Innovation in Battle Command Instruction (Alexandria, VA: 1996), 55.

⁵³ Neustadt and May, 269.

⁵⁴ Heuer, 9-9.

⁵⁵ Theodor Seuss Geisel, Oh, the Places You'll Go! (New York: Random House, 1990), 24.

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