STRATEGY RESEARCH PROJECT

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CRITICAL THINKING – A STRATEGIC COMPETENCY

BY

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ABSTRACT

AUTHOR: LTC Jeffrey L. Gwilliam

TITLE: Critical Thinking a Strategic Competency

FORMAT: Strategy Research Project

DATE: 09 April 2002 PAGES: 54 CLASSIFICATION: Unclassified

From my previous experience as an instructor at the Defense Systems Management College and as a student at the US Army War College, the strategic importance of critical thinking is not being accepted, adopted or used by students. This research project explores the reasons for this outcome and provides recommendations and techniques to enhance acceptance of critical thinking as a tool for strategic leaders. It is my premise that critical thinking is either a strategic leader core competency or is a fundamental process for mastering strategic leader core competencies. Either way, critical thinking is a strategic imperative.

This project researches critical thinking, specifically how to improve its acceptance and application in the strategic military environment. The project focuses on four areas, which if analyzed clearly and completely, will address how well critical thinking is being taught and accepted by students at the Army War College (AWC). The first area is the critical thinking concept. The objective of this element was to identify a critical thinking definition and concept, from the many that exist, which would be most useful to the AWC and for follow-on use in the strategic military environment. The second area is the audience. This element addresses how the audience effects learning. The third area is defining the benefits of CT. This area how well the audience sees the need, value or benefit of CT in their real-life. The fourth area is the current teaching approach. This area reviews the current CT approach taken by the AWC. The project offers recommendations for improving the acceptance and follow-on application of critical thinking in the strategic military environment.

TABLE OF CONTENTS

ABSTRACT iii

LIST OF ILLUSTRATIONS vii

LIST OF TABLES ix

CRITICAL THINKING – A STRATEGIC COMPETENCY 1

INTRODUCTION 1

PURPOSE 1

ISSUE 2

RESEARCH PROJECT APPROACH 2

AREA 1-CRITICAL THINKING: DEFINING THE CONCEPT (WHAT IS CT?) 2

RECOMMENDED CRITICAL THINKING APPROACH 4

Elements of Critical Thinking 4

Standards of Critical Thinking 7

CT LOGIC FOR STRATEGIC LEADERSHIP 9

THE EGO AND RATIONAL MIND 11

AREA 2-THE AUDIENCE AND HOW ADULTS LEARN (HOW DO WE LEARN BEST?) 12

THE AUDIENCE 12

MYERS BRIGGS TYPE INDICATOR (MBTI) 12

ADULT LEARNING THEORY 14

AREA 3-BENEFITS OF CRITICAL THINKING (WHY LEARN CT?) 17

NATIONAL NEEDS FOR CRITICAL THINKING 19

THE MILITARY'S WHAT'S IN IT FOR ME (WIIFM) 20

AREA 4-THE AWC CURRENT TEACHING APPROACH

(WHAT ARE WE DOING NOW?) 25

REQUIRED READING 25

CLASSROOM INTERACTION 26

CURRENT AWC CRITICAL THINKING MODEL 28

SUMMARY AND CONCLUSION 29

RECOMMENDATION AND IMPLEMENTATION (HOW CAN WE DO IT BETTER?) 29

ENDNOTES 35

BIBLIOGRAPHY 39

LIST OF ILLUSTRATIONS

FIGURE 1-CRITICAL THINKING WHEEL 5

FIGURE 2-CRITICAL THINKING PROCESS 7

FIGURE 3-CRITICAL THINKING ELEMENTS & STANDARDS 9

FIGURE 4-CRITICAL THINKING CAUSE-EFFECT LOGIC 24

LIST OF TABLES

TABLE 1-CRITICAL THINKING DEFINITIONS 3

TABLE 2-CRITICAL THINKING CONCEPTS AND CRITERIA 8

TABLE 3-NATIONAL SECURITY STRATEGY LOGIC 11

TABLE 4-THE EGO AND RATIONAL MIND 12

TABLE 5-AWC MBTI TYPE DISTRIBUTION 14

CRITICAL THINKING – A STRATEGIC COMPETENCY

INTRODUCTION

If the goal of the US Army War College (AWC) is to develop strategic leaders, then you would expect the AWC to focus learning on those skills, attributes, and knowledge known as strategic leadership core competencies. [1] Core competencies are the competencies that allow the strategic leader to effectively perform strategic leadership tasks (providing vision, shaping culture, managing relationships at the combined, interagency and national levels, representing the organization and leading change). [2] Becoming a strategic leader is a paradigm shift for most students who have been successful operational leaders. The strategic leader paradigm is one of greatly lengthened time horizons and requires acceptance of institutional responsibilities beyond the operational level. The time horizon of the strategic leader encompasses the long-range or the future in order to design and define changes needed to keep the institution healthy. Strategic leader loyalties are no longer to the immediate organization, but to the Army as an institution and the nation it serves. Whereas operational leaders have a defined focal point, execution of the unit's mission, strategic leaders have a three-hundred and sixty degree institutional focus. This requires strategic leaders to expand, change, or refine their thinking. Some students will find this paradigm shift easier than others. It should be the goal of the AWC to provide the tools necessary to make this transition. Critical thinking (CT) is one of the tools the AWC has adopted to achieve its objectives of developing strategic leaders. If becoming a strategic leader requires redefining the student's thinking, then it is incumbent on the AWC to provide the environment and the tools necessary to develop effective CT skills.

PURPOSE

The underlying basis for my project is that the AWC already recognizes critical thinking by its incorporation into the strategic leadership curriculum (Term 1, Course 1). If the AWC believes critical thinking is a necessity for today's successful strategic leader, then one key measure of success for the AWC is the extent to which its students embrace critical thinking. The student, the instructor, the method of teaching and the specific CT concept taught all influence success. Whatever method is used to teach CT, it must enable the student to accept CT and encourage its use, not only in the academic environment, but also more importantly, throughout our military environment. As such, this paper will explore critical thinking, analyze AWC current teaching methods and offer recommendations to improve the effectiveness of teaching critical thinking.

ISSUE

So, how well is the AWC doing? In my experience as both an instructor of CT at the Defense Acquisition University (DAU), Defense Systems Management College (DSMC), and as a student of critical thinking here at the Army War College, both institutions are currently failing to instill the strategic importance of CT in students. By failing, I mean that students are graduating without the knowledge of how to apply critical thinking when they return to the Army, and are not seeing the need to use critical thinking in their future role as strategic leaders. I offer the following illustration from a reflective dialog I had with several members of my seminar after the Critical Thinking lesson (1-3/4-S). The overwhelming attitude of the students was that critical thinking, as presented, is nice but academic. There is not enough time to do CT in their military environment. They did not see how CT was significantly better than their current thinking; and therefore, even if they did have time, they saw no reason to actually do critical thinking. Students were satisfied with their current ability to think and dismissed CT. Assuming my seminar is representative of most seminars, I draw the conclusion that AWC students view CT as an academic endeavor with limited real-world potential. I have seen no evidence in class that AWC students are embracing CT (engaging in dialog that challenges each others' assumptions, facts, concepts, points of view). If students are not embracing CT in class, then they are unlikely to use CT after graduation.

RESEARCH PROJECT APPROACH

I will focus on four areas, which if analyzed clearly and completely will address the stated issue: how well is the AWC doing? The first area is the CT concept. This addresses which CT definition and concept, from the many that exist, is most useful to the AWC audience. The second area is the audience. This addresses whether the audience effects how CT should be taught. The third area is defining the benefits of CT. This addresses whether the audience sees the need, value or benefit of CT in their real-life. The fourth area is the current teaching approach. This addresses how well the current CT approach is taught compared to the other elements. My research project will address these four areas, and then offer recommendations.

AREA 1-CRITICAL THINKING: DEFINING THE CONCEPT (WHAT IS CT?)

This section will research and analyze the definition, concept and approaches to CT found in current use and offer a recommendation to the AWC. In doing my research I discovered that there are as many definitions for CT as there are subject matter experts. There is no standard universally accepted definition for CT. Table 1 below is a compilation of definitions and authors I encountered in my research. I conclude that the lack of a standard definition for CT limits its

adoption and use beyond the academic environment, where the subject matter expert strictly controls the definition.

Author	Definition of Critical Thinking
Alvino	The process of determining the authenticity, accuracy, or value of something; characterized by the ability to seek reasons and alternatives, perceive the total situation, and change one's view based on evidence. Also called "logical thinking and "analytical" thinking.
Baron	Involves two functions, search and inference.
Brookfield	Is identifying and scrutinizing your underlying assumptions.
Browne	Focuses on assessment, or evaluation, of the link between a claim and the basis for the claim.
Chaffee	An active, purposeful, organized cognitive process we use to carefully examine our thinking and the thinking of others, in order to clarify and improve our understanding.
Elders	Is a self-directed process by which we take deliberate steps to think at the highest level of quality.
Ennis	Is reflective and reasonable thinking that is focused on deciding what to believe or do.
Halpern	The use of cognitive skills or strategies that increase the probability of a desirable outcome.
Hudgins & Edelman	The disposition to provide evidence in support of one's conclusions and to request evidence from others before accepting their conclusions.
Lipman	Skillful, responsible thinking, that facilitates good judgment because it relies on criteria, is self-correcting, and is sensitive to context.
Nosich	Asking questions to reason things out and believing the results of the reasoning. It requires reflection and standards.
Paul & Elders	A mode of thinking about any subject, content or problem in which the thinker improves the quality of his or her thinking by skillfully taking charge of the structures inherent in thinking and imposing intellectual standards upon them.
Schriven	Is the skill to identify less than obvious positions, claims, arguments, generalizations and definitions and to evaluate the alternatives with reasonable objectivity.
Scriven and Paul	The intellectually disciplined process of actively and skillfully conceptualizing, applying, analyzing, synthesizing, and/or evaluating information gathered from, or generated by, observation, experience, reflection, reasoning, or communication, as a guide to belief and action.
Wade	Is the ability and willingness to assess claims and make objective judgments on the basis of well-supported by reason.
Zechmiester & Johnson	Involves the principles, attitude, knowledge and skill.

TABLE 1-CRITICAL THINKING DEFINITIONS

If I incorporate the key elements of CT from the above table of leading subject matter experts into one definition, CT is:

- a disciplined and cognitive process that examines our thinking to clarify and improve our understanding;
- designed to improve the quality of our thinking to the highest levels by imposing intellectual standards; conceptualize, apply, analyze, and evaluate information and

expose our assumptions to assess claims and make judgments well supported by reason;

- is self-correcting;
- relies on criteria and is sensitive to context;
- allows us to evaluate alternatives with reasonable objectivity;
- allows us to recognize the potential weakness in our thoughts and the thoughts of others;
- and is the art of thinking about our thinking to make it better, clearer, more accurate and defensible.

This consolidation of key elements of the definitions of critical thinking highlights the wide breadth and scope of the concept of CT. It leads me to the conclusion that understanding the concept of CT is more important than any singular definition.

As an outcome of my research, I now feel reasonably comfortable with my knowledge of the *concept* of critical thinking. Instead of focusing on a definition for adoption, I would like to offer a concept of CT. By focusing our efforts on understanding the concept we no longer have the necessity for a specific definition. The reverse does not hold true, as no single definition conveys the full scope of CT. I submit that most of the definitions work within the framework or concept offered.

RECOMMENDED CRITICAL THINKING APPROACH

The concept that I recommend because it best captures the essence of critical thinking for the AWC is Dr. Richard Paul's and Dr. Linda Elder's. "*Whenever we think, we think for a purpose, to answer a question based on assumptions, information and concepts that lead to inferences that allow us to make a judgment within a point of view.*" [3] From this point on, I will use Paul's and Elders' concept of critical thinking. Their concept is understandable, logical, complete, and in a format that allows for easy transition to application.

Elements of Critical Thinking

Paul and Elders use a wheel diagram (Figure 1) to explain their concept of CT. It breaks CT into eight elements of reason: purpose, point of view, assumptions, implications, information, inferences, concepts and the issue. When you do CT, you evaluate your thoughts across all eight elements of reason. Conceptually, the CT wheel was not designed to represent the CT process. The value of the CT wheel is it has no beginning and therefore allows the user to start

using it at any element. There is no sequence to the elements and therefore they can be analyzed in any order.

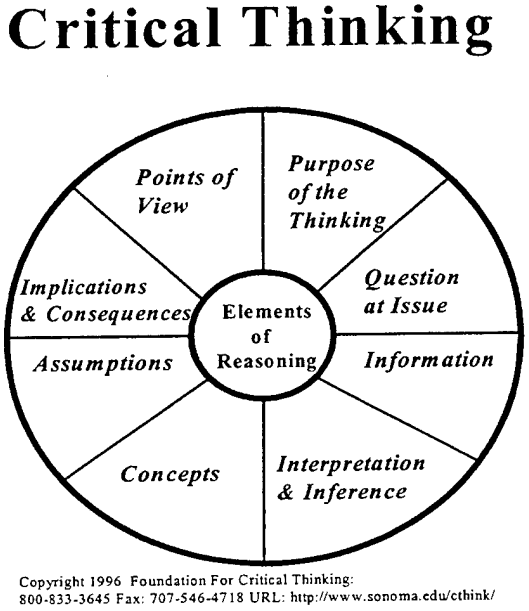

FIGURE 1-CRITICAL THINKING WHEEL

Although I will only discuss two of the eight elements of reasoning, I recommend using Chapter Four of Paul's and Linda Elder's book "Critical Thinking Tools for Taking Charge of Your Learning and Your Life" for a complete definition of all eight elements of reasoning.

Of CT's eight elements of reasoning I feel the most important are assumptions and concepts. Assumptions are elements of reasoning that reside in your unconscious, are implicit and therefore, are taken for granted. [4] Assumptions arise from our experiences, values and beliefs and may or may not be factual or valid in all situations. According to Stephen Brookefield, assumptions are your "rule of thumb on how the world works." [5] We tend to only challenge our assumptions when we are in a crisis situation or when our mental maps are no longer working for us. Assumptions lead us to react without knowing why. An example I have witnessed at the AWC is that officers have an almost instant position on peacekeeping or humanitarian operations when it comes to whether or not it is a core mission of the military

profession. Many officers adamantly deny that humanitarian missions are valid military missions. When I ask myself why the reaction is so immediate, I draw the conclusion that the response is based on a long-held belief/attitude of the military profession that predates most of the current application of military forces in support of humanitarian operations (cold war era). Many officers identify with the historical view of a warfighting Army. Further, I believe the officer's first hand experience in humanitarian operations lead them to the belief that humanitarian operations are a major detractor to their units' wartime mission. This may be a correct assumption but it is one that is unconscious. Brookfield believes that the key to critical thinking is understanding your assumptions.[6] The goal is to insure all assumptions are correct for the situation they are being used in. In order to insure they are correct for the situation they must first be identified, then evaluated. He believes assumptions are best evaluated through dialog.

A second element of reasoning that I also feel is important is "concepts." The reason I feel concepts is important is, when understanding the fundamental concepts of any discipline, you can apply CT you solve any dilemma within the discipline. For Paul and Elder, disciplines or fields as have their own CT logic. If you understand the fundamental logic of a field, whether it be history, English, biology or business, then you can think your way through most issues within the discipline. This requires identifying and understanding the core concepts of the field. The question being answered is, "What are the core concepts, that if understood, allow me to think within the discipline?" Identifying core concepts could certainly be accomplished at AWC. Doing so would not only benefit the student but also the instructors, as clarity of instructional purpose would come to the forefront. Therefore, I recommend seminar dialog be focused around the key concepts.

In addition to using Paul's and Elder's CT Wheel (Figure 1), I recommend using the following process oriented CT framework found in Figure 2. The reason I find this framework helpful is it represents CT as an actual process. Although Paul and Elders believe their wheel can be rotated and used starting with any element, I believe there is a benefit to understanding CT as a process. A process helps the audience grasp what they cannot see, feel, touch or taste. It also highlights that the elements are relational and have connections. For example, facts, concepts, point of view and assumptions all lead to implications, which in turn lead to conclusions. It also highlights that assumptions, in most cases, are subconscious. According to Stephen Brookefield, we seldom realize the assumptions we make in our day-to-day thinking.

When we do recognize our assumptions we often do not analyze them for appropriateness to the current situation. [7] Additionally, viewing CT as a process is also essential to systematic and continual improvement in our thinking. This is similar to commercial industries use of statistical process control to reduce and eliminate variability in the manufacturing process. This is achieved by gaining an accurate understanding of the process. If you view CT as a process, you begin to systematically improve your thinking. The quality of thought is no longer uncontrollable but can be systematically improved over time. The first two steps then are defining and understanding the thought process. Paul and Elders approach to CT does this.

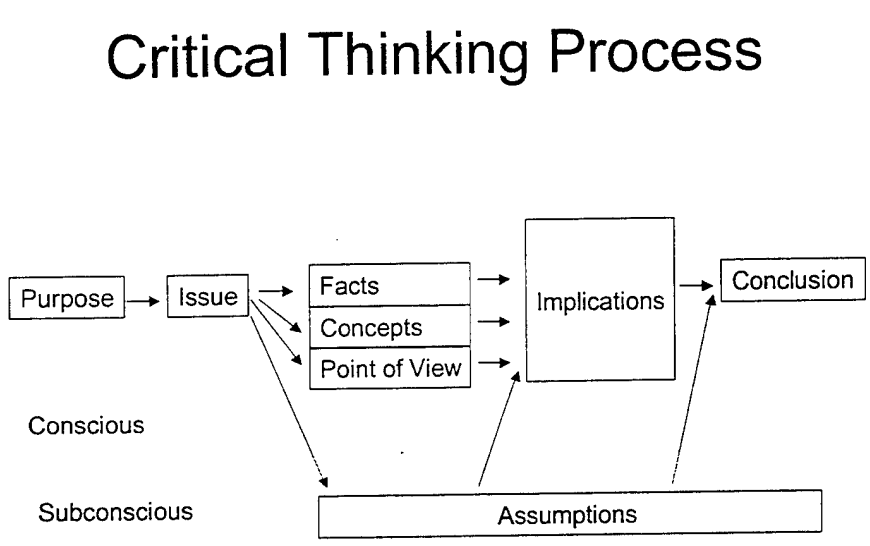

FIGURE 2-CRITICAL THINKING PROCESS

Standards of Critical Thinking

What makes Paul's and Elders' CT concept stand out is that it identifies the CT process and provides standards/criteria to evaluate CT. Table 2 below takes each of the eight elements and applies Paul's and Elders' key criteria or standards. Standards are used to evaluate CT across the eight elements of reasoning. The standards are clarity, accuracy, precision, relevance, depth, breadth, logicalness, and significance. [8] According to Paul and Elders, the standards are of varying weight or importance between elements. For example, the standard of

clarity is not of the same importance to each element of reason. Clarity is the most important standard for the element of "purpose". If the purpose is not clear, then how can the rest of the process or elements support the purpose? This also is the reason I believe viewing CT as a process is important. The critical question to ask for purpose would be, is the purpose clear? Therefore, questioning is the key method of assessing CT. Only through questioning others, and ourselves, can we evaluate, assess, challenge and improve our CT. This is a Socratic approach to learning. I recommend the AWC adopt and educate faculty in questioning techniques.

Element	Working Concept	Example Criteria/Standard Questions
Purpose/ Goal	All thinking pursues a purpose. We think to accomplish some objective/goal.	Is the purpose clear and significant?
Issue/ Question	Whenever we attempt to reason, there is usually an issue or question we are attempting to solve.	Is the issue clear, significant and relevant?
Ideas/ Concepts	The meaning our mind creates for words. All thinking involves ideas and concepts[9]	What is the concept? Is the concept clear and relevant?
Assumptions	Something we take for granted unconsciously; things we have previously learned and do not question including beliefs and values.	Do I recognize my assumptions? Do my assumptions apply is this situation? Are they justifiable? Can I support them?
Information/ fact/ data	Reasoning requires facts, data, or/and experience.	Is it clear, relevant, fair and accurate?
Implication/ Consequence	All reasoning leads somewhere. There are cause-effect relations. Implications become consequences when they actually occur. [10]	Are they clear, significant, logical, and accurate?
Inference/ Conclusion/ Judgment	A step in the mind by which one concludes something.	Are they clear, logical justifiable?
Point of View (POV)	We think from our specific point of view, including profession, age, gender, and social upbringing.	Is our POV fair? Is it clearly understood and relevant? What other POVs are relevant?

TABLE 2-CRITICAL THINKING CONCEPTS AND CRITERIA [11]

One of the reasons I offer Paul's and Elders' concept is its structural framework. To the AWC audience, this structural and analytical approach to CT is graphic and offers a method to evaluate an otherwise soft, ill-defined, mental process. This is important to the primary Myers Briggs Type Indicator personality types of the AWC student (to be discussed later). The framework also allows the audience to readily grasp the concept for application (use). For me, this is where Paul's and Elders' concept of CT is most valuable. It is a structure to use in real life. When you take the elements and evaluate them to standards, you have a complete method for assessing CT in the classroom, as well as in real life. It can be used for evaluating any subject matter, article, lecturer or idea throughout the AWC curriculum. Additionally, it also

resembles the military staff study format, which should make it easier for the audience to accept for use.

I depicted the elements of reason with their appropriate weighted standards in Figure 3 below. The value of the chart is that it provides the critical thinker with a tool to analyze his thinking in any element against quantifiable standards. The chart identifies the importance of each standard to each element. It allows the user to break CT down into elements for easier analysis. I recommend using this chart as the centerpiece for dialog on any subject at the AWC. The chart could be a poster and referred to during in-class dialog. For example, if the seminar is discussing a reading assignment, the instructor could ask, "Was the author's purpose clear?" This could be done for any or all the CT elements of reasoning. This table is a platform, structure, and framework to incorporate CT into each and every lesson at the AWC.

Critical Thinking Matrix

ELEMENTS	Clarity	Accuracy	Precision	Relevance	Depth	Logic	Significance	Fairness	Justifiable
	Standards								
Purpose	1						2		3
Issue	1		1	3			2		
Facts	1	4		2				3	
Assumptions	1			3					2
Implications	3		4			2	1		
Concepts	1	4		2	3				
Conclusions	1					2			3
Point of View	2			3				1	

Numbers define importance & priority (1st, 2nd, 3rd...)

FIGURE 3-CRITICAL THINKING ELEMENTS & STANDARDS

CT LOGIC FOR STRATEGIC LEADERSHIP

As discussed above, Paul and Elder believe there is logic associated with all disciplines. The importance of this conclusion is that if you understand the logic you can think within the discipline to solve or resolve situations. "Virtually all courses have some inherent unity that, when understood ties all the learning of the course together like a tapestry. This unity is typically found in fundamental concepts that define the subject or its goals." [12] I recommend this

be applied at the AWC in general and in each block or term of instructions. The value of understanding the logic is it enhances the learning, and increases the depth of understanding. It might also prove a valuable exercise for instructors before teaching and for students at the end of the course. CT logic also highlights the debate between training and education, where experts state the real value of education is that it teaches "you how to think and what the questions ought to be." [13] CT logic is an education in how to think. Some postulate that as the Army transforms, stronger emphasis needs to be made in leadership education (how to think) rather than training (what to think). One might argue that much of the AWC curriculum is currently training and not education. Table 5 (below) is my attempt to identify the National Security Strategy (NSS) logic for Course 2. This NSS logic is a display of what I learned and therefore can be evaluated by the instructor against course objectives.

Element	Logic
Purpose or goal	By gaining a historical understanding of NSS we are better prepared to serve in positions that develop and implement NSS. Through a historical review of NSS we gain a working understanding of the forces that shape it.
Issue or problem	NSS is an ad-hoc, dynamic interagency process with global implications that affect how the US uses its resources to promote its worldwide interests in a constantly changing environment. NSS may appear inconsistent in application unless you review it in a historic context and accept that the US reserves the right to be inconsistent when it is in our national strategic interest to do so. For example, why the US supported Bosnian peacekeeping and not Rwandan.
Concepts	Strategy formulation model (National policy, interests, objectives, military strategy). Ends- Ways-Means relationship. The four elements of national power. Historical review of 20th century is key to understanding the forces that shape NSS. History is key to understanding current thinking and culture.
Information	US history provides key information to understanding and assessing NSS: W. Wilson-collective security (League of Nations to the UN); Cold War-containment (bi-polar, balance of power, NSC 68, rational actor); Limited War-Korea & Vietnam; and Clinton engagement strategy.
Implications & Consequences	If we systematically study national security from a historical perspective we can understand our past, the consequences of current policy and implications for the future. Without a major adversary and in light of technological improvements, the use of military power is increasingly becoming an extension of political power. Our past NSS, in particular containment, created deep allies (NATO, UK and Japan) and many of our current threats (Iraq, Iran, and Afghanistan). There are more global issues than the US

	has the means (resources) to resolve.
Point of View	The military is only one component of NSS. Understanding the political and State Dept. views is key to effective development of our NSS. The State Dept. views the military as an extension of our political power.
Assumptions	That the US can articulate our national interests. NSS is derived from the perceived threats. Democracy leads to a more secure world.
Inferences & Conclusions	We can view, judge and make inferences about the effectiveness of our NSS from a historical perspective by the events that happened or did not happen. Containment led to the break-up of the Soviet Union. The concept of limited war achieved limited success. The world is no more secure since the fall of the Soviet Union and therefore, there is an increasing need for a well thought-out NSS that addresses multiple regional threats. DoD is the only agency that has standardized training on NSS. The use of the military power in peacekeeping operations without commensurate political power has little effect. The US reserves the right to choose how it will protect its national interests. As a superpower, we reserve the right to pursue our national interests in the face of global (UN) disapproval.

TABLE 3-NATIONAL SECURITY STRATEGY LOGIC

THE EGO AND RATIONAL MIND

An area of the mind that requires some consideration is one's ego, because it can impact one's ability to do CT. Elder's explains ego and the rational mind as the two operations of our brain (Table 3 below). The rational side is where CT resides. The ego side operates to protect your current thinking and to promote one's self-serving interests. Ego therefore, can block one's attempts to do CT. For example, the ego often interprets questioning as a challenge or confrontation. The ego never wants to recognize thaf it could be wrong. The ego can then react and close down the rational thought process in order to protect itself. You become angered and lose the ability to see clearly. One way to know whether your ego has been activated is by your emotions. If you feel yourself getting defensive, irritable, arrogant, angry, apathetic, indifferent, alienated, resentful, depressed, or frustrated, perhaps your ego (self-protecting mechanism) has been engaged. [14] This is one of the reasons CT requires the participants to suspend judgment on topics until the speaker completes his/her explanation.

EGO	Rational
Pursues selfish interests at the expense of the rights of others	Respects the needs and desires of others
Stunts the use/growth of the rational mind	Is motivated to develop itself
Can be inflexible	Is flexible
Selfish	Strives to be fair-minded
Distorts information & ignores significant information	Strives to gather and consider all relevant information
Makes global negative sweeping generalizations	Strives to accurately interpret information
Responds with negative counter productive emotions when it fails to meet its needs	Reacts rationally to situations by taking charge of emotions

TABLE 4-THE EGO AND RATIONAL MIND

AREA 2-THE AUDIENCE AND HOW ADULTS LEARN (HOW DO WE LEARN BEST?)

This section will explore audience implications on learning. It will address the question of how the audience's make-up and composition impacts learning. This requires an analysis of the audience to identify how it learns best and determine if there are any Myers Briggs Type Indicator (MBTI) personality type considerations.

THE AUDIENCE

The AWC audience consists of adults. These adults are highly motivated military leaders who have proven themselves as successful leaders. AWC students are by their selection successful. They have reached this point in their career on their ability to think and lead soldiers. This would imply that the audience has solid thinking skills and therefore CT is in reality only refinement of their thinking process. I believe in Malsow's "Hierarchy of Needs", AWC students are self-actualizing. This is an audience that has successfully demonstrated their thinking skills and do not readily see any need to change the way they think. Their current mental models have worked up to this point in their career. They have strong egos. Although little has been written about the AWC audience and its implication on learning, much has been written about adults and adult learning.

MYERS BRIGGS TYPE INDICATOR (MBTI)

In this section I will not attempt to go into depth about the Myers Briggs Type Indicator (MBTI). Rather, I assume the reader is familiar with the concept and therefore the focus will be on how the prevalent MBTI types of the AWC student impact learning. If there is a pattern to the type of student at the AWC, then I will address how MBTI types affect learning.

Table 5 is a comparison of AWC MBTI to MBTI overall population. [15] The data shows that the military attracts and retains certain MBTI types. Eighty-nine percent (89%) of the military is either ST or NT, compared to forty percent (40%) of the population. This is a significant difference and reflects the reduced numbers of SF or NF types. Further, Fifty-one percent (51%) of the military is STJ, compared to twenty percent (20%) of the population. Both these statistical differences indicate that the military does attract and retain STJs. The largest military two-digit type is TJ with seventy-two percent (72%), compared to twenty four percent (24%) of the population. However, the high level of TJs does correlate to senior management types found in the business world. If the student (and instructor) populations are ST or NT, then we can focus our learning style on these two temperaments.

ISTJ's have sensing as their dominant function. They respond positively to what is practical and functional. They ask themselves the question "Is this of use to me and can my senses master the skill being taught?" [16] This supports the adult learning theory point that adults need to see the benefit of what they are learning. They dislike instruction that is abstract, or material that is not defined up front. CT is an abstract concept and is difficult to accept using the sensing function. ISTJ's learn best in a step-by-step process, as they are linear thinkers, implying that the lesson must flow in a manner that leads them to the conclusion that CT is critical to strategic leadership. [17] It also necessitates that the lesson and the instructor show them how to do CT. Demonstrating CT allows STJ's to use their sensing function. ISTJ's also want to walk away with a tool they can use. Lastly, ISTJ's prefer working alone. [18]

ESTJ's have thinking as their dominant function and are energized by logically organized material, and by analyzing the subject. As they are also ST's, like ISTJ's, they have a very similar learning style. They have difficulty accepting or learning subjects that do not fit into their "mental systems." [19] This could affect how ESTJ's respond to CT, as CT may not fit into their mental system because it is an abstract concept that is difficult to quantify with their sensing (S) function. I found this to be the case when I was an instructor. Sensors were far less initially responsive to CT than Intuitors (Ns). Additionally, they respond best with instructors who are well organized. T's need logical order and have a will to achieve mastery. [20] They need the last word in arguments. Es tend to think out loud so many times when they engage in dialog they are still in the process of formulating their thoughts. As an instructor you avoid engaging T's in a heated dialog like CT. ESTJ's are also linear thinkers who like group projects.

Army War College Class 99 vs (MBTI Population)

Note: figures are rounded.

The darkest shade is over represented by 5%

The lighter shade is under represented by 5%

MBTI Type Table

ISTJ 29% (12%)	ISFJ 4% (14%)	INFJ 1% (2%)	INTJ 11% (2%)
ISTP 4% (5%)	ISFP 1% (9%)	INFP 1% (4%)	INTP 4% (3%)
ESTP 3% (4%)	ESFP 1 (9%)	ENFP 2% (8%)	ENTP 5% (3%)
ESTJ 22% (9%)	ESFJ 1% (12.3%)	ENFJ 2% (3%)	ENTJ 11% (2%)

TABLE 5-AWC MBTI TYPE DISTRIBUTION

The other two primary military types are ENTJ and INTJ. INTJ are dominant Ns and energized when their imagination is "fired up with intriguing ideas." ENTJ's have a dominant thinking function like the ESTJ's, but are also intuitive. Both ENTJ's and INTJ's are conceptual in nature and enjoy ideas and theory. These types (NT's) usually see the connection of CT to their lives before ST's. When NT's demonstrate their understanding and enthusiasm for CT, it tends to push others to continue to the learning process. It leads the ST's to question, challenge or rethink their position.

ADULT LEARNING THEORY

Adult learning theory is about maximizing the learning opportunity for adult students and therefore, is applicable to the AWC. The teaching method used by the instructor affects learning. As an instructor, I have had the opportunity to witness the same material taught differently with differing learning outcomes. Since adult learning theory centers on improving learning, instructors are critical to adult learning. First, the instructor's assumptions about the students affect how he teaches. [21] For example, the assumption about the importance of student involvement in the learning process affects how the instructor presents the material. Second, the instructor controls how the material is presented, audience interaction, and the

classroom atmosphere. If the instructor understands and uses adult learning theory effectively, then higher levels of learning can be achieved.

Adults "are responsible people who seek to build their self-esteem through pragmatic learning activities in which their competence is enhanced. From this perspective, there are motivation theories that are far more applicable to adult instruction than others. These theories embrace competence as the central assumption. ... Human beings strive for understanding and mastery, and tend to be motivated when they are effectively learning something of value." [22] Additionally, highly educated audiences with undergraduate and graduate degrees like the AWC, are open to learning "aimed at personal development, achievement, and self-actualization." [23] Adults are motivated by esteem needs: an inner desire for strength, achievement, adequacy, mastery, and competence. This is the greatest single reason adults desire to learn. [24] Researchers conclude that adults are self-motivated, recognize their responsibility for their own learning, have a need to apply what they are learning and have a desire to become competent in what they are learning. Adult learners also want time to demonstrate their real understanding. [25] In theory, all this makes AWC students a very receptive audience when the teaching approach recognizes the adult learning theory. However, the absence of adult learning theory can frustrate the audience. For example, a frustration I have experienced and witnessed is the AWC's three-hour sound bite approach to learning. For many subjects, including CT, it is hard to demonstrate real understanding or mastery of the material in three hours. Instructors can only scratch the surface within the allotted time. In this example, as adult learners, desires of the AWC students to learn in-depth and to apply the material go unfulfilled.

Although much of the adult learning process is controlled by the instructor, student attitudes do play into learning. Attitudes are assumptions about life; "they give us guidelines and allow us to anticipate and cope with recurrent events. They help us cope and be consistent in our behavior." [26] Attitudes are experienced immediately without reflection or premeditation. They are a combination of perception with judgment. The importance of recognizing assumptions was highlighted in the CT section. Student attitudes that influence learning are: the instructor; the subject; themselves; and their expectancy of success in what they are learning. [27] Attitudes can either positively or negatively effect learning. These attitudes can, at times, interfere with learning. AWC students have strong attitudes. An AWC student attitude often identified with subjects like CT is the phrase "touchy feely". AWC students are showing

their pre-existing attitude toward CT. But, since attitudes are learned through experience, direct instruction, and role behavior, they can, if recognized, be modified and changed. New experiences, including learning, can affect attitudes. [28]

What happens when the instructor does not recognize or use adult learning theory? If the content or process of instruction does not meet the students' needs, the learning will have little meaning. Involving adults in a learning process that does not seem to fulfill any of their personal goals leads to an inevitable conclusion: "this is a waste of time." [29] Additionally, "Adults can have a desire to learn something as well as a positive attitude toward it, but if they do not find the process of learning stimulating, their attention will diminish." [30] This might explain what is happening with CT. Students may be having difficulty accepting CT because they do not see the benefit or need for it. It is the responsibility of the instructor to bridge the gap between learning and the students' common experiences. [31]

"When adults do not want to learn what we have to offer, it is quite probable that they either experience needs that interfere with the learning process or that the instruction neglects, satiates or threatens their current needs state." [32] The implication is that CT could threaten the AWC students' current state (ego). AWC students got where they are today by their current thinking skills. On a superficial level they might feel threatened by the false assertion that their current thinking is flawed. In fact, the point of CT is to improve their thinking skills and not to assess their past performance.

A positive influence on adult learning is the energy of the instructor or facilitator. "Enthusiastic instruction has a powerful influence on the motivation of the learner. Instructors are sellers, advocates. If we cannot show by our own presence, energy and conviction that the subject matter has made a positive difference for us, the learner is forewarned...If we appear bored, listless and uninvolved with what we are asking the adult to learn, his response will be if that's what knowing this does for you, by all means, keep it away from me...Our personal interest in our subject matter is the surest indicator that we care about it." [33] I believe the level of energy is a direct result of the instructor's personal comfort with the material being presented. I base this on my own experience as an instructor and the feedback I received from my students. If you are not comfortable or believe you do not have sufficient expertise, how can you be enthusiastic? Based on dialog with my AWC CT instructor, I believe this is what happened to him. He was not sufficiently prepared to feel comfortable with the material. If the

scope of the instructor's preparation is limited to an instructor read-ahead, how can we expect the instructor to truly understand a difficult concept such as CT? I was fortunate enough at DAU to have been allowed CT training beyond the instructor's read-ahead.

I recommend AWC instructors be trained on adult learning theory. The goal is for instructors to adopt adult learning theory in their classrooms.

AREA 3-BENEFITS OF CRITICAL THINKING (WHY LEARN CT?)

This section will address the element of "why we should we learn CT" and the value or benefit of CT from the student's perspective. As stated in adult learning theory, students learn best when they see a connection or need to learn the subject. Additionally we will examine how well the current teaching method is addressing the "What's In It For Me?" (WIIFM) question. If the students are not accepting CT, perhaps students are not seeing its connection to real life. This is one of Gerald Nosich's contentions. He believes students often see CT as "school stuff" with little connection to reality.[34] From what I have seen at the AWC, this appears to be a valid part of the issue. I base this on my personal experience as an instructor of CT and a student of CT, extensive reflective dialogs with fellow students and instructors; and lastly, attendance at the 22nd International Conference on Critical Thinking (Jun 00). In my experience, we fail to address the needs (WIIFM) of the adult learners in the senior military audience. In this section, I will attempt to address and analyze the why and WIIFM questions.

The majority of CT literature is written for the academic environment and therefore is not geared toward our adult learner, who has a real-world focus. In most cases, college professors write CT literature for other college professors or for secondary school teachers and therefore its WIIFM is geared for fellow academicians. The literature's point of view, perspective, style, audience and language is academic. Their WIIFM is not the same as the military's. First, the target audience is other CT professors having a desire to improve how they teach. Second, college students are significantly different than AWC students. Differences that impact learning are age, experience, motivation and career success. A major component of successful application of CT in adult learning is students needing "something to link their experience in our critical thinking class with their experience in other components of their lives. That is why we need to bring critical thinking into industry and everyday life." [35] Our audience is not teenagers sitting in a classroom at a local university, but successful senior DoD leaders with extensive real-world thinking skills. Therefore, they have a stronger need to see the WIIFM connection. If

our students are not seeing the real-world connection, then you could reasonably expect the negative outcomes I have experienced with CT education here at the AWC and at the Defense Acquisition University. From this, I conclude we have yet to adequately relate CT to the world of strategic military leaders and their personal experiences.

When we use academically focused approaches like those found in the academic literature on CT, it can lead to a perception that CT belongs in academia. I found it difficult to research CT literature because I am not the primary audience for whom the articles were written. I do not have a background in philosophy or teaching. Therefore, using this literature and its author's point of view may make it difficult for the AWC student to comprehend and accept; assuming I am a fair representation of the AWC student.

Additionally, the CT approaches highlighted in the literature fail to take into account that the AWC does not have an entire semester to teach CT. At both DSMC and AWC, the time allotted for teaching CT is less than 4 hours. Dr. Robert Hawkins provides evidence that it takes three to five hours per week for two years to infuse CT into college students.[36] One might conclude from this that the AWC effort to develop critical thinkers is woefully under-resourced. However, there are ways to apply CT without increasing direct teaching time, which will be discussed later.

Where are the Peter Drucker's or Peter Senge's espousing the value of CT to the business (or military) world? It would be much easier to answer the audiences why or WIIFM questions if noted business authors were highlighting the real-world value of CT. Our audience is far more receptive to new ideas when they are presented by respected business leaders. The AWC audience is far closer to business than academia. On closer examination, I believe business authors are "implicitly" espousing CT. Senge, in The 5th Discipline, uses words that reflect the critical thinking concept. In his main element of Personal Mastery, the second underlying movement is "continually learning how to see the current reality more clearly." [37] Seeing reality more clearly is one of the key outcomes of critical thinking. Senge again uses the CT concept in his chapter on Mental Models. "More specifically, new insights fail to get put into practice because they conflict with deeply held internal images of how the world works...images that limit us to familiar ways of thinking and acting." [38] These words are the essence of the concept of CT and express the need for CT. One possible conclusion I draw from this is that

the concept of CT may be an underlying theme in business literature but does not use the term "critical thinking".

As previously stated, there is no standard accepted definition of CT. The definition varies from subject matter expert to subject matter expert. A problem then arises in that without a standard definition for CT, how does business literature address CT in a clear form? One must deduce the connection of CT in business. In fact you have to use CT to make the connection. This situation makes it is difficult (but not impossible) to teach CT using these indirect business references. Therefore, we turn to academic literature because of its direct connection to the CT. But, as previously discussed, the academic literature does not adequately the senior military adult learner WIIFM.

Dr. Paul, a CT academician by profession, further identifies renowned business and economic leaders who also indirectly address the need and value of CT. He references Laura Tyson (former Chairwomen of the President's Council of Economic Advisors), Robert Reich (former Secretary of Labor), Economists Robert Heilbroner and Lester Thurow and Management guru, Edward Deming. All have stressed, in one form or another, the dire necessity to improve our (U.S.) analytical skills to remain competitive in the world market. "High productivity work-place organizations depend on workers who can do more than read, write and do simple arithmetic... in such organizations; workers are asked to use judgment and make decisions rather than to merely follow directions." [39] Again, the CT concept is presented but not the term CT. However, these references are global and are the words from the CT required reading. Seeing a direct connection of CT to the military environment is still not achieved using a global perspective. No connection implies no learning.

NATIONAL NEEDS FOR CRITICAL THINKING

In this section we will further refine the national or strategic need for CT. Most economic forecasts predict intensifying economic competition. They forecast an accelerating rate of change. Dr. Paul concludes future success will be defined by "the work of the mind" or be intellectually based. [40] He goes on to say "of course, with the accelerated pace of change we are experiencing, the ability to adapt our thinking becomes more and more important. To adapt to change, you need thinking that can restructure itself again and again and again often going back to its foundational change. In fact the more change accelerates, the more foundational change occurs.... As the pace increases, it will force societies to value critical thinking." [41] He

believes this makes CT a tool for survival. "When an instructor can relate a subject to how we sleep, or the air we breathe, or the energy we need, we are likely to be interested. Personal survival is a profoundly compelling topic."[42] Survival begins to address the students' need (WIIFM) to learn CT.

THE MILITARY'S WHAT'S IN IT FOR ME (WIIFM)

What is the military's need for CT? The WIIFM arguments presented below are the kinds of needs that should reach the military audience. The purpose of addressing the WIIFM is to gain buy-in of CT, or any other topic. To achieve buy-in, the answer to the WIIFM question must be relevant to the senior strategic military learner.

A recent NATO general officer guest lecturer at the AWC, whose 40 years of real-world army experience make his comments insightful, powerful and relevant, stated the one thing that the military needs to do more than anything else is to develop thinking soldiers. The necessity revolves around the level of fight. The ability to think and act must match the level of the fight. For example, in Desert Storm, the level of the fight was at the division, brigade, and battalion levels. Therefore, it was commanders who were doing the thinking. In Bosnia and Kosovo, the level of the fight was down at the squad. It is at this level where situations arise which demand real-time intelligent and decisive action. It is the squad leader who must have the ability and skill to think through the situation to determine options and the optimal course of action without fear of reprisal from superiors. There will be no time to wait for higher headquarters to give direction. Junior leaders must be trained to think and act without being second-guessed for their initiative. They need to learn how to be decisive and must be empowered to put their decision into action. [43] Another general officer guest lecturer using the same Bosnian scenario stated that in today's environment, a soldier's tactical action can have strategical implication. [44] Therefore, the Army has a critical need for thinking soldiers. These are real life examples of the military's need for CT. Although the focus of this paper is CT at the strategic level, CT is required at all leadership levels including the non-commissioned officer and junior officer levels. A recent article in Parameters also recommended adding CT to the curriculum earlier than senior service college. [45] Further, I submit and recommend that it is the senior leader who is ultimately responsible for mentoring subordinates to use CT.

Another example of the level of the fight was highlighted in a recent article in which the Air Force expressed its frustration over not having the authority to hit high-probability moving

targets in Afghanistan. The result, some believe, was a prolonged war. Some in the Air Force believe it shows a lack of trust by senior leaders in their pilots. When time was of the essence permission was required from CENTCOM headquarters thousands of miles and eight time zones away. If we have thinking pilots and a sudden opportunity presents itself, then the senior military leadership should trust its pilots, who have situational awareness, with the authority to take the initiative. How can the CENTCOM Judge Advocate General (JAG), who advises the CENTCOM commander, 8,000 miles away, see the picture clearer than the pilot? [46]

The results from recent junior officer feedback sessions highlight a serious retention problem caused by senior leadership. Leaders are becoming increasingly conservative in decision making. These surveys identified many senior leaders as having a "zero-defect" philosophy and using extensive "micro-management". [47] These are some of the examples of types of comments you might see in organizations that fail to use or value CT. It is the situation that stifles initiatives and stymies CT.

What makes addressing the WIIFM powerful is that it gets to the personal motivation level of learning. An individual may buy-in to a general concept but not see the need to do it himself. I believe this may be the case with CT for AWC students. So how should we address the WIIFM for the AWC student? I offer some examples from both the literature and from my teaching experience at the Defense Acquisition University, Defense Systems Management College.

"Everyone thinks. It is our nature to do so. But much of our thinking, left to itself, is biased, distorted, partial, uninformed, and downright prejudice. Yet the quality of our life and that of what we produce, make or build depends precisely on the quality of thought." [48] What Dr. Paul is saying is that since much of our thought processes are unconscious, we are blind to our biases, distortions, and prejudices. What happens when these unconscious biases are left unchecked during the execution of decision at the point of a major crisis? It is during a crisis that we need our clearest of thinking. It is during a crisis that we need CT as core competency. As we move from tactical to strategical levels the consequences of our decisions become greater. Therefore, the need to do CT becomes greater. If we do not know how to apply CT in our routine life, how can we expect to apply it during times of crisis? In the absence of knowing what to do, we do what we know. This all implies that unless we are equipped with CT before the crisis we will be unable to apply CT during the crisis.

Most graduates of AWC will go on to senior staff positions where they must be able to apply the art of strategic leadership to be successful. One recurring theme of strategic leadership is the ability to achieve consensus amongst different strategic organizations and agencies. Every organization has differing views, perspectives, attitudes and positions reflecting their unique mission. Positions and recommendations can no longer be forced upon others but must be resolved by consensus. Joint Pub 3-0 (Doctrine for Joint Operations) highlights that Joint Force Commanders "may be required to build consensus to achieve unity of effort." CT can assist in reaching consensus by providing a tool to allow strategic leaders to address issues thoroughly from all perspectives and to clearly and logically articulate their specific recommendation so that everyone can see the issue in totality. These are the types of situations in which CT is most necessary. The magnitude of strategic issues and their importance demands the use of CT by strategic leaders.

So now let us define the environment of the strategic leader. The strategic world according to AWC is volatile, uncertain, complex and ambiguous (VUCA). The boundaries of the Army profession are expanding and are less well-defined. Joint Pub 5-00.1 (Joint Campaign Planning) states, "In a Military Operations Other Than War (MOOTW) environment, the end state and supporting military conditions that define success may be ill-defined or even absent... the combatant commander still has to think in terms of causes and affects that will lead to success." Technology (precision munitions) makes it easier to apply military force. The boundaries between political and military objectives are blurring. Our country's civilian leadership is becoming less and less familiar with the military. A tool for surviving in this VUCA environment and changing political environment is CT.

In this VUCA environment, time and distance are our enemy. As strategic leaders and decision makers, we will have more complex issues, positions and decisions, which require immediate action. These issues may be totally foreign to us and beyond our experience as tactical leaders. We will no longer be able to clearly see the answer because there is no black and white, or right and wrong answers. Additionally, as strategic leaders, we will also be further removed from the issue or point of conflict. Moving from the tactical to operational level and beyond requires leaders who are effective in "indirect-level leadership." In indirect-level leadership, we no longer can see or directly control what we are responsible for. At this level we are required to "develop a picture of what is happening based on imperfect and often

incomplete information gathered by others." [49] We will be forced to rely on our subordinates' ability to think. We must learn how to effectively guide and influence subordinates without stifling the decision-making process. This requires us to ask the right questions to grasp the complexity of the issue, assess our subordinates' thinking and frame the strategic situation in minimal time. There is no time to make mistakes. This is the essence of CT. CT allows us to be confident in our subordinates' abilities to provide complete and accurate resolution. It will require us to model (to show others) CT. CT offers us a tool to not only address the issue but to evaluate the outcome. Through modeling CT, our subordinates' thinking skills will improve.

Unless the AWC adequately addresses the WIIFM of CT, its measure of success will not dramatically improve from what it is today. By addressing the value and WIIFM we get buy-in from the audience. It is how the instructor opens the door for learning. But we cannot just tell the students the WIIFM and gain blind acceptance. Students also need to understand, apply and benefit from CT. This means they need to know or see how CT applies to their lives.

One method I have used as an instructor to address the WIIFM is to show students the cause-effect logic of CT. I develop the cause-effect logic on a blackboard simultaneously with dialog to create the cause-effect connection. Figure 4 highlights this cause-effect logic. The premise is that if you use CT, then you will improve your performance and that of the organization. First, I dialog with the class to define CT. Having the class define CT baselines the class to an agreed upon definition. Then, if CT improves the clarity and accuracy of our thoughts about any subject, idea or problem, and if we use CT, then we can improve our problem-solving and decision-making capability. Most leaders will agree that regardless of position, they must be adept problem solvers and decision makers. This applies to whether you make the decision or merely provide advice or recommendations. If we are improving our ability to solve problems and make good decisions, then we can improve our organization's performance and our personal lives. I have found that you just cannot tell this to a room full of adult learners and expect them to buy-in to CT. To the student the board work appears to be original thought. And if this is done in collaboration with the students, you achieve some immediate buy-in. This creates a window of opportunity where the student mind recognizes his thoughts' are challenging his mental model. Students begin to see the connection between CT and their need (WIIFM). I have also found that when someone in the audience begins showing interest/understanding, it has a positive effect on others who are less enthusiastic. Feedback from the students after the class was very positive.

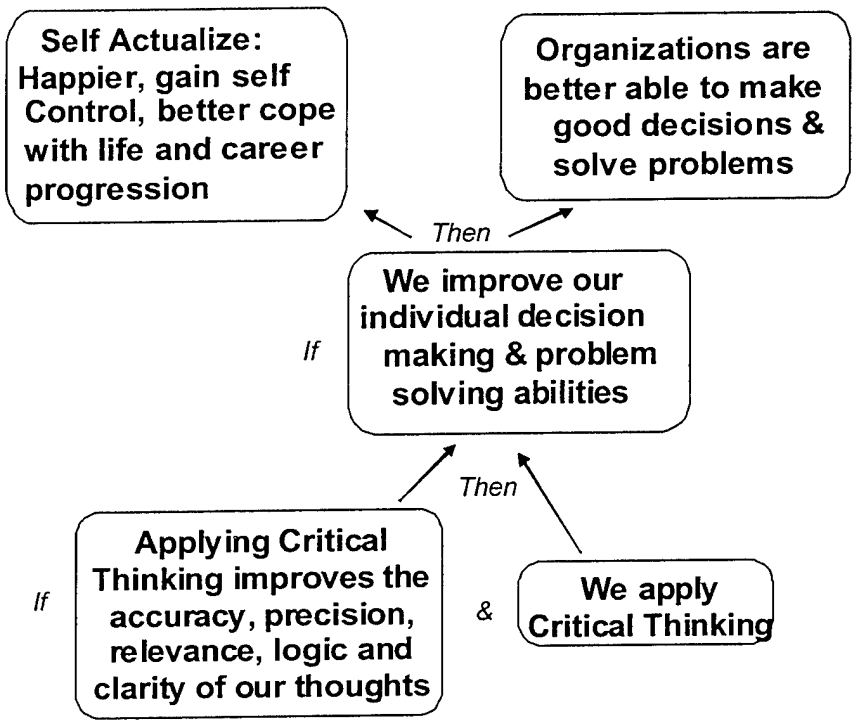

FIGURE 4-CRITICAL THINKING CAUSE-EFFECT LOGIC

Another approach I found powerful in its simplicity was from Stephen Brookefield. CT is simply improving your thinking and who does not want to do that? It would be hard to argue that you are not a better thinker today than you were five years ago. You are better because of real-world trial and error. But this can be a painful hit or miss process. This process does not allow you to focus your efforts to improve your thinking. To improve, you need an understanding of the elements of CT. [50] Unfortunately, some never learn from their own experiences.

The bottom line of WIIFM might just be to ask the students to reflect back at all the decisions they have made over their career and reflect on whether they could have made better decisions had they thought it through in more detail. The answer I always come away with is absolutely. The purpose of CT is to improve their ability to make decisions.

This leads me to the conclusion and recommendation that in every course, lesson, block and subject, the AWC must define and address the WIIFM. The more abstract or unfamiliar the student is with the lesson, the greater need to show the student the WIIFM.

AREA 4-THE AWC CURRENT TEACHING APPROACH (WHAT ARE WE DOING NOW?)

In this section, I will assess the current AWC approach to teaching the CT lesson (1-3/4S). My assessment is augmented by my experience as a former instructor of CT in a similar academic environment. This section will attempt to identify issues related to the current teaching approach. Once potential issues are identified, I can more accurately identify solutions/recommendations to change and improve the outcome. I recognize that I may have personal biases and that my own personality type can influence my assessment. To mitigate my personal biases, I held dialog with several classmates of differing backgrounds and personality types. Most agreed with my assessment of how CT is being taught. Although this is not a scientific method, I believe it does enhance the validity of my assessment.

REQUIRED READING

The required reading for the CT lesson is from Dr. Paul and is an attempt to address the need for CT. The reading addresses the need for CT from the global perspective. It asserts the need for CT based on the increasing rate of change and increasing complexity in the world. However, this global need may not be reaching the AWC audience, as it is both academic and abstract. For example, after I read the material I found myself saying "so what?" No one would argue the fact that the world is more complicated than it was twenty years ago. We as AWC students are surviving and, in fact, succeeding in this changing environment. Therefore, the need identified in the reading, albeit acceptable, is neither hard-hitting, nor directly relevant to the audience. The need for CT is global and academic. It does not address many of the key components of adult learning theory surrounding AWC student needs. This is the "WIIFM" need of first the military soldier and then the strategic leader. Additionally, the required readings provide no definition of the concept of CT or how to use (do) CT. If we want the students to use CT, it first must be relevant and then it must be useful. For CT to be useful, it must be easily applied to any situation.

If the purpose of the Strategic Leadership Primer is to identify strategic leadership's core competencies, then one would expect to find thinking or CT identified in the primer. Thinking is not explicitly identified in the primer. The AWC would certainly agree that strategic leadership involves changing our thinking. During the Senior Leader Symposium one of the guest speakers defined the essence strategic leadership as being about "how to think." [51] Although the primer is not a required reading in lesson 1-3/4-S (Critical Thinking), it is part of the Term I, Course 1 curriculum. It is my contention that CT is at least an enabling process for the strategic

areas addressed in the primer such as strategic vision, strategic-leader-competencies (conceptual and interpersonal), strategic leadership tasks and BE-KNOW-DO.

The Army Chief of Staff recently received the results from his chartered Army Training and Leadership Panel (ATLDP). The ATLDP was tasked to identify competencies of Army leaders in the 21st century. The panel identified self-awareness and adaptability as the key competencies of the future. Self-awareness is the ability to know your strengths and weaknesses and learn to use your strengths and correct your weaknesses. Adaptability is the ability to see the changes in the environment in order to effectively use the changes to your advantage. These competencies will have to be added to the primer. [52] I believe CT is a means to achieve or improve self-awareness and adaptability.

As a general comment for all AWC lessons, the extensive amount of nightly required readings both in pages (volume) and variety of articles, limits CT and is counter productive to CT. The larger the volume of reading, the less likely a student is to use CT to analyze it. On any given night, it takes me two to three hours to do the required reading. By the time I finish the last reading, I can barely remember the general topic of the first reading. The implication of this is that the students, because of time constraints, and large volume of required readings are not analyzing the readings. If we are not analyzing, we are not doing CT. I do not believe this is the AWC's desired outcome. The student is frustrated because he cannot devote sufficient time to the individual articles to adequately analyze them in any detail. Most students I have dialoged with expressed this frustration. This negatively impacts the overall quality of student learning.

CLASSROOM INTERACTION

The lecture on CT, as most other lessons, fails to incorporate adult learning theory. The lecture format leads to one-way communications and restricts the audience's ability to apply what is being taught. Some lecturing is required since the reading did not explain the concept of CT. During the lesson I did not witness any audience buy-in to CT; meaning that no students openly stated they were or were going to adopt the CT philosophy. One possible reason for this could be that the material is not reaching the students on a "needs" level. Without addressing the students WIIFM, you don't draw the audience into the subject matter. Like most other lessons, CT is taught as a three-hour sound bite. The implication is that as soon as the class is over it can be forgotten. This format teaches CT as content. While teaching for content may be

appropriate for many other subjects, it is not for CT. CT is a process and I recommend it be taught as such. Further, CT is a process to analyze content. One reason to teach CT early in the curriculum is to allow its use throughout the curriculum to enhance learning. This has not happened. Again, this is due to CT being taught as content and follow-on instructors failing to build upon the CT lesson. If all instructors understood the concept of CT and used it in their lesson, then CT would be taught as a process. If AWC's goal is to instill CT into senior leaders, their curriculum should allow students the opportunity to apply CT to every subject and every lesson presented. Adult learning theory highlights the need and benefit to allow students' continuous opportunity to apply what is being taught. This goes for not only CT, but also all other key concepts being taught.

Throughout the course students complete the reading assignments but often do not analyze the reading. The typical in-class assignment for the student is to synopsize the content of the reading. Students are seldom asked to analyze the reading using CT or any other analytical approach. This has been a source of frustration for several students I have spoken with. If we are just repeating the content from the reading assignment in class, then what real learning is taking place? The same holds true for lectures that often mirror the reading assignment. Because of this, we are missing an excellent opportunity to enhance/develop our CT skills through classroom dialog and therefore, learning is reduced.

Since the audience is adults, the AWC teaching approach should be based on adult learning theory. The goal of adult learning theory is to maximize learning by creating a learning environment that recognizes the learning abilities and needs of the adult. However, this concept may not be intuitive to the military instructor who has not been exposed to this form of teaching. While the instructors may be natural military leaders, their natural talents may or may not extend to teaching. Institutions have a responsibility to provide instructor familiarization with teaching methods. How else can the AWC equip the instructor for success? According to at least one instructor I spoke with, the AWC did not provide him with any training on instructional methods. I also had a similar experience at DAU. These institutions are abrogating their responsibility to provide proper instructor training. The consequence is the lack of quality instruction being provided to students.

It is my conclusion that AWC instructors may not have sufficient detailed understanding of CT to effectively teach it. The first question to ask is how well does the instructor understand

the material? There appears to be an assumption at the AWC that by simply providing an instructor package, the instructor will be able to comprehend, understand and teach any subject. If the instructor's knowledge of CT is skin-deep, based solely on the instructor package, then how can he feel comfortable and relaxed when teaching or modeling CT? This is an important component of adult learning theory. "If it is a skill we are teaching, can we demonstrate it? This is the real credibility to oneself and others. Do we understand what we teach? Can we explain in our own words? Can we give more than one good example about what we are teaching? Do we know the limits and consequences of what we are teaching?" [53] The question then for the AWC is, does the faculty believe CT is important? For example, a DLCM faculty member told my seminar that what we were going to learn in his course was by far more important than Course 1 (where CT is taught) because we all ready knew leadership from 20 years of experience. Although this was one faculty member, my experience as an instructor at DSMC led me to the conclusion that often instructors, not teaching CT, believed CT was one of those "touchy feely" subjects of marginal value. If the faculty believes CT is unimportant, then it is no surprise the students do as well.

CURRENT AWC CRITICAL THINKING MODEL

The last area in this section I will review the current CT approach/model from the CT lesson (1-3/4S). Is the current CT concept or approach clear and in a format that the audience can first understand and then use? My conclusion is that the current CT approach is not clear and therefore is difficult to apply, even for the motivated student. I still do not fully understand how the AWC CT diagram is to be used. When looking at the CT diagram, it is not self-explanatory. It identifies the components of CT but it does not help you understand how to apply CT in real life. A right approach for the audience can make all the difference in the learning process. The wrong approach handicaps the learning. Again, if CT is an imperative, then getting the approach right is critical to the follow-on success of strategic leaders. This issue is certainly affected by the type of student and his personality type.

Throughout the course I have seldom seen students use CT. Students freely offer opinions, but are seldom challenged to support their position, much less use CT. In the typical scenario, the student offers a position or judgment and others either accept or reject it. Personal beliefs are offered as fact. Questions are seldom asked of the student to justify his or her position. Questions that could lead to CT include: what do you base your position on?, what are your assumptions?, is your position impacted by your perspective?, and what are the facts

you have to support your position?. It appears that CT dialog is taboo. Dialog that challenges our thought process, positions and conclusions are perceived by other students and the instructor as a personal attack and therefore off-limits. Unless we begin to analyze why we think the way we do, we cannot improve our ability to think, or the accuracy of our existing thought. A great learning opportunity was lost by my seminar during the DMSPO end of course exercise. During the exercise, each group briefed their actions and conclusions. There were no CT discussions, dialog or engaging after the briefings. Each group came to different recommendations, and understanding the reasons would have lead to increased learning. I think the biggest contributing factor to this was the learning environment established by the instructor. According to both CT theory and adult learning theory, to achieve CT dialog requires the instructor to model the behavior first. Modeling the behavior offers the students the opportunity to experience CT and thereby reduces their fear of doing it themselves. If the instructors are not knowledgeable or do not believe in CT, then how can we expect them to model it?

SUMMARY AND CONCLUSION

Hopefully, I have achieved my objective of clearly and completely analyzing and addressing my stated issue: how well is the AWC doing? I started by analyzing CT concepts and offered an alternative approach that I believe will be more useful to the AWC audience. The recommended approach provides a tool (Figure 3-Critical Thinking Elements and Standards) that students can easily use outside the school. I addressed how the audience impacts learning and the importance of adult learning theory. I discussed the importance of addressing the benefits or WIIFM of CT to the adult learner. The WIIFM is currently missing from the CT lesson (1-3/4-S). And lastly, I analyzed the current AWC CT teaching approach. The AWC academic environment should support the use of CT as a process across the curriculum. This affords students the opportunity to use and become more proficient in a low-risk environment. My overall strategic research project conclusion is; there is a better method of teaching CT at the AWC than the current approach.

RECOMMENDATION AND IMPLEMENTATION (HOW CAN WE DO IT BETTER?)

Recent military studies like ATLDP have stressed that strategic leadership is about "how to think." "How to think" approaches require institutions like the AWC to emphasize education over training (what to think). As the Army transforms, so must officer development and strategic leadership competencies. This has already begun with the ATLDP identification of two new competencies for the 21st century (self-awareness and adaptability). Hopefully, this strategic

research project has demonstrated that CT is a strategic enabling tool that will allow strategic leaders to meet current and future challenges. If this is so, then this section provides the AWC with recommendations and implementation steps to significantly enhance student adoption and use of CT. With these recommendations, I believe, the AWC can become the premiere institution for strategic leadership studies of the 21st century and a model for others.

Step 1: Implement an Adult Learning approach - Adult learning theory is a critical underlying concept for the entire faculty. The objective of the AWC should be to maximize student learning. Adult learning theory enhances learning in adults. One outcome is instructors would assume the role of facilitator while students would take a pro-active role in their learning. I recommend that adult learning theory be required training for all faculty and be conducted by outside subject matter experts. I recommend outside expertise because I am unaware of any in-house expertise. Secondly, the message from outside experts is often better received than from in-house experts. Regardless of whether the AWC adopts any of the following CT recommendations, instilling adult learning theory into the faculty should be considered. If the AWC desires to be a world-class institution in preparing strategic leaders, then it owes it to its faculty to provide instructional methods education. Arming the faculty for success rather than relying on the instructor's innate abilities is critical to consistent outstanding student instruction. Great instructors are seldom born but they can be developed.

A: Adult learning theory should create an atmosphere that allows everyone to ask the tough questions. This may be easier said than done but it is only by asking the tough questions that the real issues begin to take shape and form. This means it is not only acceptable to ask CT questions but it must be demanded (a seminar norm). The goal is to create an atmosphere where students feel free to explore beyond their comfort zone, and where they are challenged to explain their position. Instructors must understand how to question. This is critical to adult learning where both students and instructors lead the dialog. Instructors must model the questioning technique for students. The goal is to get inside the students' head to analyze and cause awareness of their thought process with out creating a hostile or adversary environment. Therefore, included in implementing adult learning theory, should be education on questioning techniques. One source is Dr Paul's video series on the Socratic method, one of which is "Using Questions to Take Thinking apart."

B: One method of achieving this type of atmosphere is for instructors to use their own personal experiences as a teaching tool. Sharing intense experiences increases student understanding/involvement. It should always be based on real-world experience. "Because learning is often so new as well as abstract to many adults, they honestly wonder if they can do it. Any time we can provide real world examples of people such as learners successfully performing the expected learning activity, we have taken steps to improve success." [54] An example from my own experience is, as an O-5 commander of a civilian organization, I wish I had used CT in developing my organizations business plan. If I had, I could have avoided being out-of-step with our two-star general officer. I assumed my point of view (element of reasoning) mirrored that of the commands. No one, not even my commander reviewed my plan prior to briefing it to my general office. I was dead wrong. My point of view was opposite of my organization's strategic leader. As an result of this I received constant additional oversight from my O-6 commander throughout my next year of command, until I could prove myself a team player. The purpose of the example is to show how CT would have helped.

C: Learning occurs when you engage the student and challenge his mental model. This is achieved by creating an environment where you suspend judgment. As the audience is primarily TJs, suspending judgment is not easy. It requires constant reinforcement of the concept of suspending judgment by the instructor. This requires emphasizing that one's judgments are based on a particular and unique set of experiences that may or may not be true for the rest of the students. What may seem right to you may not be the same for others. This may be difficult concept to accept since our education system is based on a belief that there is only one right answer. One way to remind the instructor and student may be a poster with the words "suspend judgment."

Step 2: Adopt the Recommended Critical Thinking Approach - Adopt and become familiar with Paul's and Elders' CT model recommended in this research project. This can be accomplished by working with Dr. Paul to develop a focused workshop for the entire faculty. However, implementation can begin now by capitalizing on Dr Herb Barber expertise. If we expect students to use CT then we must have instructors model it. You cannot achieve this level of understanding by reading the lecture notes. This requires extensive training from an expert.

A: The centerpiece of the AWC CT curriculum should be Figure 3 (Critical Thinking Elements and Standards). This diagram can be used throughout the course.

B: Hopefully, this research project has provided convincing discourse on the need to address the WIIFM. This establishes a sense of urgency and the need for CT while promoting adult learning theory. I recommend addressing the WIIFM in the assigned reading for the CT lesson (1-3/4-S). As a start, you could use my section of the paper on "Benefits of Critical Thinking (Why Learn CT?)." The need to address the WIIFM is not specific to CT, but all lessons should begin with defining the need for the student to learn the subject. The more abstract the lesson the greater the need to address the WIIFM. We need to emphasize the daily aspect of the learning to their lives. One approach to accomplish this is to ask the students to "think back to a time in your past where CT might have helped them?" [55] This would be a situation or problem where your emotions (anger, frustration) were elevated. "Probably more emotionally powerful is any learning situation where what is being learned has an immediate relationship to the daily lives of adults.... The closer we bring the learning to the personal lives of the learner the more emotional involvement." [56]

Step 3: Use Critical Thinking as a Strategic Enabling Process- CT is a strategic enabling process and not a content block of instruction. CT's greatest value is enabling learning of any subject. This would require all faculty in all departments to use CT. When only one department uses CT, it can lead students to challenge its importance; "why does only DLCM require us to use CT?" Using CT as a process also allows the students to apply CT in a non-hostile environment. "Since so much of what they learn will be used on the job ...the learning environment has less crucial consequences and is an excellent ground to practice." [57] I cannot over emphasize the importance of modeling CT through personal experiences that highlight both good and bad application of thinking. It is only after applying CT can students realistically judge its future value. I offer the following implementation actions for use in any subject.

A: Use the CT elements & standards (Figure 3) as a format for dialog on assigned readings and lectures. Again, it is through application of CT that students begin to see the real value of CT. This allows the student to apply CT throughout the course, further promoting adult learning theory. It does require cross department standardization. This leverages opportunities to develop CT across all lessons.

B: Use the CT elements and standards format for analysis of required readings. Rather than every student read every article, assign a lead student to read and critically analyze the article using the CT elements and standards. Several other students can back him up. You could provide each group a couple of minutes to dialog prior to presenting. After the lead student has presented his critical analysis it is the responsibility of all students to engage in critical dialog that challenges the lead student's analysis using the CT elements and standards. Besides offering students an opportunity to do CT allows students to take responsibility for their own learning. It also reduces the frustration students experience having to read and comprehend all the daily required readings. This should be done across all courses to maximize the application of CT, which causes greater learning.

C: Use teams/groups to improve CT. Teams provide an environment that naturally forces the application of CT where students are dialoging as long as group-think does not occur. In teams, you, by default, have to address many of the elements of reasoning when identifying and resolving the problem. This is an example as to why teams often produce higher quality products. Teams are currently being used at the AWC, but the focus remains on the product/deliverable and not the process. Due to time constraints and the need to produce a deliverable, teams marginalize CT. The leader often asserts his solution because of time constraints. By de-emphasizing the deliverable, teams can focus on the process.

D: Focus on core concepts. If the student understands the core concepts, he/she is more likely to refer to them in the future than to facts that are memorized. This supports the concept of "how to think" over "what to think." It requires core concept be identified by the lead instructor. When dialog strays you can ask the question, "how does this relate to the concept of ....?"

E: Have students develop course logic. This allows the student to demonstrate his CT and it shows the student's level of understanding of the material. It is an assessment tool on how well the student is grasping the logic of the course.

F: Have instructors develop course logic. If this is accomplished, then the instructors will be able to more clearly see whether the blocks of instruction are disjointed, and whether the key concepts are identified. I would currently say the completeness of course logic varies from department to department, with DNSS being the best. If the focus of strategic leadership is how

to think (education), then considering the time constraints, we need to de-emphasize training, which I believe is still the approach of many blocks of instruction in Term 1 Courses 1, 2, 3 and 4. This would be a mechanism for the faculty to assess their material.

Step 4: Focus on "How to Think"- In Term 1, there are a lot of courses that are "what to think" not "how to think." A how to think approach supports current Army leadership recommendations (ATLDP). For example, many of the DMSPO lessons are straight from the Joint Publication which is a "what to think" approach. In my seminar, the DMPSO end of course exercise exclusively focused on the product (the briefing and deliverable) rather than the joint process. There was a tremendous opportunity lost by not focusing on joint process issues encountered during the exercise.

Step 5: AWC leadership support- successful incorporation of CT throughout the curriculum requires Commandant buy-in. Although improvement can be achieved at the departmental level by adoption of the CT, for the institution in its entirety to embrace CT requires commitment from senior leadership. One reason I make this conclusion is that CT is "soft" skill that will run into opposition from instructors who already believe they have mastered their teaching technique. It is also a change and change causes resistance.

Step 6: Other actions.

A: Update the Strategic Leadership Primer to endorse and specifically address CT as the enabling process for strategic leadership.

B: Update the CT required readings. It should include a concise explanation of the concept of CT and specifically address the military benefits (WIIFM). I would use Chapter Four, pages 50 to 58, of Paul's and Linda Elder's book "Critical Thinking Tools for Taking Charge of Your Learning and Your Life" as required reading of CT. I would also use my section on "Benefits of Critical Thinking (Why learn CT)."

WORD COUNT 13,733

ENDNOTES

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[9] Ibid., 62.

[10] Ibid., 77.

[11] Ibid., 61, 62, 70, 77, 79, 106.

[12] Ibid., 148.

[13] Jeffrey McCausland and Gregg Martin, "Transforming Strategic Leader Education for the 21st-Century Army", Parameters, 03 (Autumn 2001), 22.

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[38] Ibid., 176.

[39] Richard Paul, Critical Thinking How to Prepare Students for a Rapidly Changing World. (Santa Rosa California. Foundation for Critical Thinking), 1995, 5.

[40] Ibid.,13.

[41] The Whitman Institute, Conversations with Critical Thinkers,101.

[42] Raymond J. Wlodkowski, Enhancing Adult Motivation to Learn,118.

[43] The ideas in this paragraph are based on the remarks made by a speaker participating in the AWC Kermit Roosevelt Lecture, 26 Sep 01.

[44] The ideas in this paragraph are based on the remarks made by a speaker participating in the theater intelligence Lecture, 18 Dec 01.

[45] Jeffrey McCausland and Gregg Martin, "Transforming Strategic Leader Education for the 21st-Century Army", 24.

[46] Thomas E Ricks, "Target Approval Delays Cost the Air Force Key Hits," The Washington Post, 18 November 01, sec A, p. 1, 12, 13.

[47] Jeffrey McCausland and Gregg Martin, "Transforming Strategic Leader Education for the 21st-Century Army", 26.

[48] Richard Paul and Linda Elder, Critical Thinking Tools for Taking Charge of Your Learning and Your Life, xx.

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[52] LTG William Steele and LTC Robert Walters Jr, "Three yards in a Cloud of Dust or the Forward Pass? 21st Century Leadership Competencies", Army Magazine (August 2001), 31.

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