Writing Our Way to Better Critical Thinking

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Years ago, while serving as a surface warfare officer in the Navy, I was involved in an incident that resulted from an almost incredible chain of errors. The ship I served on scraped the side of a weather data collection buoy in the middle of the ocean, in spite of the multibillion dollar warship having the most sophisticated sensor package in the world — the Aegis suite — and an award-winning crew. The details are unimportant, but the incident highlighted how easy it is to make a serious error when operating tempo is high and groupthink takes over. Everyone on watch thought someone else would stop the incident from happening, and no one did. I came to realize it was a crew-wide failure in critical thinking. We should have seen the indicators of a problem developing and taken actions to get ahead of it, and we didn't. I've also come to realize it was unremarkable, in that it could have been just about any military unit, in any number of scenarios.

The Case for Critical Thinking

Almost 20 years later, there is little doubt that the military needs critical thinkers as leaders more so now than in my time. The world has grown exponentially in complexity and pace of movement, and the military leader must not only be able to operate independently while nesting with commander's intent, but also to anticipate and get ahead of problems. We find this idea embedded in our professional military education institution mission statements and outcomes. For example, consider the Maneuver Captains Career Course (MCCC) Outcome 6: "Apply critical thinking to understand and realize mission command to build teams, establish shared understanding, issue clear commander's intent, demonstrate disciplined initiative, use mission orders, and accept prudent risk." Similarly, the Maneuver Senior Leaders Course purpose, as identified in its welcome letter, is to "educate Infantry and Armor NCOs to be adaptive leaders that are critical and creative thinkers."

According to Army Doctrine Publication (ADP) 6-0, *Mission Command: Command and Control of Army Forces*, "Critical thinking examines a problem in depth from multiple points of view. It determines whether adequate justification exists to accept conclusions as true based on a given inference or argument. Critical thinkers apply judgment about what to believe or what to do in response to facts, experience, or arguments."[1] But this definition falls short in that it tells only part of the story. We need leaders who can not only apply descriptive analysis (understanding and responding to what has already happened, as the definition above implies) but also prescriptive analysis. We need leaders who can determine how to actively shape the environment around them toward mission accomplishment.

Critical thinking experts Richard Paul and Linda Elder take the critical thinking definition a step further, and I believe their definition comes closer to what the Army needs from its leaders: "Critical thinking is the art of analyzing and evaluating thinking with a view to improving it."[2] So critical thinking involves metacognition, a refinement not so much of what we think but of how we think and learn. What's key about this is that by thinking about complex subjects and reflecting on and refining our own thought processes, we can improve our ability to think.[3]

Teaching Critical Thinking in the Military

Teaching critical thinking is a tall order in an environment that prioritizes templates, memory aids, and formatted briefs. I recognize that the above save both time and lives because they drill commonly performed, critical tasks to a familiarity where they become muscle memory. We can have confidence that our leaders can reliably repeat them in the most strenuous circumstances. But while repetitions of templated activities build a sort of routinized muscle memory (renowned educational psychologist Benjamin Bloom called it naturalization), they don't work on the same muscles that flex for critical thinking.

ADP 6-22, *Army Leadership and the Profession*, defines the leadership competency of *Prepares Self* as "understands the contribution of… critical thinking, learns new approaches to problem solving, filters unnecessary information efficiently, and analyzes and organizes information to create knowledge."[4] The *Creates a Positive Environment* competency also stimulates innovative and critical thinking in others. The Army's leadership publication goes on to link critical and creative thinking with adaptability and agility.[5] It's clear the Army sees a direct relationship between being able to think critically and leader success. What's less clear is, within the time and space-constrained environment of professional military education, how do we build the competencies that underlie performance in these areas? The answer is: write more.

Writing as an Avenue to Critical Thinking

I teach communicative skills at the Maneuver Center of Excellence, and I grimace when people refer to what we teach as writing. The vehicle we use to assess it is writing, sure, but what we're trying to build is critical thinking. We're trying to get students, generally pre-command captains, to develop skills that enable them to see patterns and connection points and get ahead of problems, instead of reactively trying to solve them once they occur.

We also need maneuver leaders to exercise leadership through others, so we need them to take a sometimes vague or nonexistent set of instructions, analyze the situation, determine what's required and how best to go about it, and come up with a solution that advances them toward mission accomplishment — all while anticipating problems that could derail them. Along the way, we're often asking them to drill down to the essence of a complex concept, pick out what matters, and then translate and package it into a message suitable for a specific audience. For staff officers, of course, this skill becomes even more important, because the staff largely performs the filtering and sense-making functions not only for themselves but for their commander.

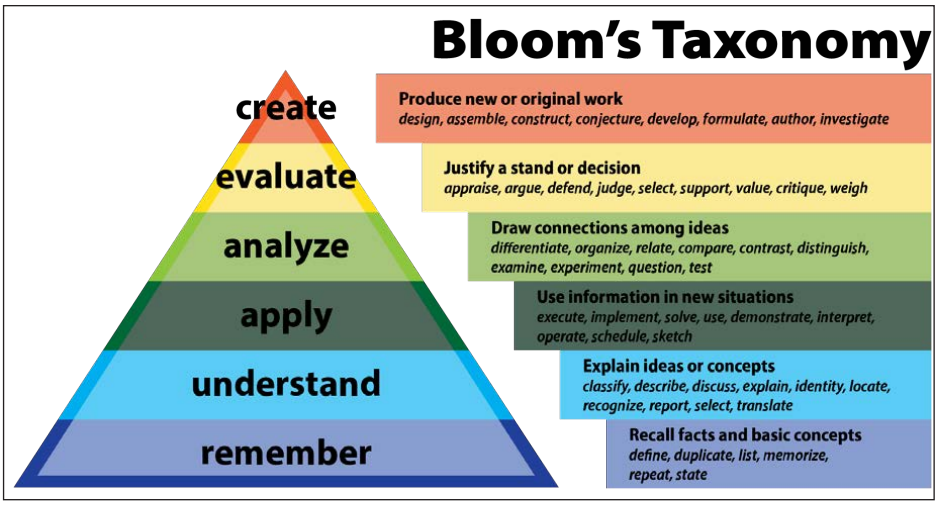
We struggle with getting young maneuver officers to embrace this. Student survey comments for MCCC routinely lament the lack of utility communicative skills as a topic area brings to their jobs as company commanders and staff officers. If they acknowledge its importance at all, they want to spend more time on structured briefs, and they want to write NCO evaluation reports (NCOERs) and memorandums, because they think of the communication being assessed as an end to itself. These examples of communication are what they've been doing, and they're what some of them think they'll continue to be primarily responsible for. So, why not practice them to a higher level of execution or talk about reviewing them, instead of wasting precious time writing about past battles or fictional cross-domain near-peer scenarios?

Most junior officers, in my experience, see themselves as battlefield tacticians first, potential staff officers and day-to-day in-garrison leaders a distant second. To an extent, this mind set is necessary. The warfighting business rewards physicality and violence of action. But continuing to practice communication modes they're already familiar with does nothing to develop the critical-thinking skills they need as they advance. The physical equivalent would be like always working on their strength while neglecting their cardiovascular conditioning. They could destroy an enemy who came into their wheelhouse, but they'd be in trouble if they had to outmaneuver him.

Writing Builds Higher-Order Thinking Skills

A 2007 Life Sciences Education study found a direct correlation between writing and critical thinking. The researchers experimented with college students by having one group of students go through a traditional quiz-based laboratory experience and the other go through a writing-intensive laboratory experience. The study measured critical-thinking skills for both sets of students before and after the semester, with the set that participated in the writing-intensive experience showing an improvement in critical thinking more than nine times that of the non-writing group.[6] Specifically, it seems the more opportunity for deep reflection, and for implementing feedback on writing, the more improvement occurs.[7]

In another 2002 study, researchers compared the self-reported institutional growth in critical thinking (IGCT) between students at four universities at graduation. The researchers isolated the variable of selectivity by intentionally choosing schools that were both highly selective and schools that were low in selectivity. What they found was that students at schools whose curricula specifically emphasized writing assignments over multiple-choice examinations saw a statistically significant higher increase in IGCT, regardless of selectivity in admissions.[8] So even if students have a diverse range of critical-thinking skills upon entry, a writing-intensive program elevates their critical-thinking performance.



Bloom's Taxonomy (Graphic courtesy of Vanderbilt University Center for Teaching)

This works because of the theory that underlies Bloom's taxonomy, a method of categorizing learning into domains and, within those domains, into levels of complexity and specificity. What we're talking about is the difference between learning at lower levels — which is largely about remembering, understanding, and being able to apply specific knowledge — and learning at higher levels, which involves analyzing, evaluating, and creating.

The highest levels of learning within the cognitive (thought) domain ask a learner to assess the importance of certain elements of information, determine an approach or argument that is most effective for a given situation, and create a new product from component elements, as some examples.[9] So when it comes to leading troops in battle, this is where the rubber meets the road. The military needs battlefield leaders and staff officers who can filter important information quickly, synthesize it into a conclusion or decision, and evaluate courses of action based on criteria set by a situational analysis, all while nesting with higher intent.

Where writing comes in is here. Writing that doesn't use a canalizing template forces the writer to do several things: define and analyze a problem, explore the existing body of knowledge about the problem, cull through quantities of information to find relevant patterns and meaning, take a position based in analysis, and systematically lay out an informed solution to the problem for a specific audience. Rather than applying rote, templated solutions, the writer has to synthesize new ideas from existing information and draw inferences that lead to conclusions, thus practicing higher-order thinking. Developing higher-order thinking skills leads to thoughtful, agile leaders who can more readily see connections and implications in their day-to-day.

Writing gives us an opportunity to explore complex concepts as well as to define and refine how we think. It puts us in a position to ask ourselves growth questions: Am I seeing this clearly, or am I letting biases and preconceived notions cloud my judgment? Are there other possibilities I may have missed? What does my audience need to know? How is this relevant to me now and in the future? What can I learn from this? Perhaps even more importantly, writing enables the continuous improvement of the profession by facilitating the sharing of your ideas and experiences with a larger audience. No matter what your position or rank, someone in the force less senior could benefit from your experience, and someone more senior could benefit from your ideas.

There is a direct link between writing and critical thinking, and between critical thinking and leadership effectiveness in a complex world. It is, minute for minute, some of the best time you can spend developing your ability to think critically. Do it for your critical-thinking skills. Do it for your formation. Do it for your profession.

Notes

[1] Army Doctrine Publication (ADP) 6-0, *Mission Command: Command and Control of Army Forces*, July 2019, 2-4, accessed from https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN18314-ADP_6-0-000-WEB-3.pdf.

[2] Richard Paul and Linda Elder, *Critical Thinking Concepts & Tools*, 7th ed. (Tomales, CA: Foundation for Critical Thinking), 2.

[3] Nancy Chick, "Metacognition," Vanderbilt University Center for Teaching, last modified 2013, accessed 11 April 2021 from https://cft.vanderbilt.edu/guides-sub-pages/metacognition.

[4] ADP 6-22, *Army Leadership and the Profession*, July 2019, 6-4, accessed from https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN 20039-ADP_6-22-001-WEB-0.pdf.
[5] Ibid, Ch. 4.
[6] Ian J. Quitadamo and Martha J. Kurtz, "Learning to Improve: Using Writing to Increase Critical Thinking Performance in General Education Biology," *CBE Life Sciences Education* 6, no. 2, (Summer 2007): 148. doi: 10.1187/cbe.06-11-0203.
[7] Gamze Cavdar and Sue Doe, "Learning through Writing: Teaching Critical Thinking Skills in Writing Assignments, *PS: Political Science and Politics* 45, no. 2, (April 2012): 298-306, accessed from https://www.jstor.org/stable/41433696.
[8] Lisa Tsui, "Fostering Critical Thinking Through Effective Pedagogy," *The Journal of Higher Education* 73, no. 6 (November/December 2002): 754-755, accessed from http://www.jstor.org/stable/1558404.
[9] University of North Carolina at Chapel Hill Learning Center. "Higher Order Thinking: Bloom's Taxonomy." Accessed 12 April 2021 from https://learningcenter.unc.edu/tips-and-tools/higher-order-thinking/#:~: text=Bloom's%20Taxonomy%20is%20a%20framework,and%20creation%E2%80%94the%20levels%20of.

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