ENHANCING CRITICAL THINKING TRAINING FOR INTELLIGENCE ANALYSTS:

A DOD-WIDE SOLUTION

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ABSTRACT

Critical thinking is a vital skill for intelligence analysts and must be learned, practiced, and deeply ingrained in order to enable these analysts to effectively and accurately prepare assessments. Unfortunately, no baseline currently exists upon which a Department of Defense (DOD) intelligence analyst is trained in critical thinking. Once the analyst is initially trained, no recurring training is required, allowing these skills to atrophy over time. How can we better train our analysts to think critically and maintain these skills throughout their careers?

This paper seeks to establish this baseline for intelligence analysts across the DOD. To accomplish this, best practices are derived from various formal critical thinking and structured analysis training courses across the DOD and intelligence community, as well as from informal methods, exercises, and events. The foundation of this baseline is classroom-based academic training modeled upon a formal, structured, and tiered Defense Intelligence Agency program. Informal practice is then incorporated in the form of regular briefings and discussions. Lastly, scenario-based training events are built into this baseline as capstone exercises. The paper concludes with a discussion of potential barriers to implementation, and extends the concept of critical thinking as a vital discipline to the entire DOD.

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The collective intelligence analysis that led to the United States' preemptive invasion of Iraq is largely characterized as one of the great intelligence failures of this century.[1] Throughout 2002 and early 2003, intelligence was collected and crafted to present decision-makers with a compelling case for the Iraqi development of weapons of mass destruction (WMD).[2] This analysis was used to justify the US invasion of Iraq on March 19, 2003. President Bush "reluctantly" authorized this invasion, citing his administration's refusal to "live at the mercy of an outlaw regime that threatens the peace with weapons of mass murder."[3] A post-invasion investigation revealed that Iraq and the Saddam Hussein regime had most likely ended its nuclear, chemical, and biological weapons development in 1991, and no such WMD were ever discovered.[4]

In July of 2004, the US Senate Select Committee on Intelligence published its "Report on the US Intelligence Community's Prewar Intelligence Assessment on Iraq."[5] The report offered seven conclusions regarding Iraqi intelligence and WMD during the pre-invasion period. It concluded "most of the major key judgements . . . either overstated, or were not supported by, the underlying intelligence reporting. A series of failures, particularly in analytic trade craft, led to the mischaracterization of the intelligence."[6] The report further concluded that there existed a "collective presumption" in the intelligence community (IC) about the existence of WMD in Iraq which reflected a prevailing "group think" dynamic.[7] Perhaps most concerning, IC managers and supervisors "did not encourage analysts to challenge their assumptions, fully consider alternative arguments, accurately characterize the intel reporting, or counsel analysts who lost their objectivity."[8]

How do failures like the Iraqi WMD case happen in the 21st century? Why is this still possible, considering today's ubiquity of information and near-instant availability? How can we design the education and training of our intelligence analysts to prevent such failures from happening again?

The Iraq 2003 case study was a failure in many aspects, but perhaps most of all it was a failure in the ability of our intelligence community to think critically. The Department of Defense's (DOD) current approach to training intelligence analysts in critical thinking is inadequate. While some organizations such as the Defense Intelligence Agency (DIA) excel in educating their personnel to think critically, the training others receive across the military services is often service-centric, insufficient, or sometimes non-existent. While some in-residence courses do exist outside of the DIA, relatively few analysts have the opportunity to attend these schools. Such courses are often conducted wholly within a military service, and do not encourage or solicit sister service personnel to attend. Furthermore, there is no formal requirement for a continuum of education in critical thinking; if analysts do not go to the in-residence course, they may never receive *any* formal training in critical thinking outside of initial technical training. As one prescient intelligence analyst states, "no unified requirement has been generated to ensure that a common baseline is being established for all analysts regardless of their specific specialty and job requirements."[9]

The goal of this paper is to establish this common baseline for all DOD intelligence analysts by coalescing critical thinking and structured analysis elements from across the DOD and IC. This baseline will include formal academic training based on the DIA's Defense Intelligence Strategic Analysis Program, informal practice and exercise, and capstone scenario-based training events. This curriculum will be generic enough to apply to intelligence analysts

across the DOD, including the DIA and each of the military services. It will also allow for this training to be tailored to the unit's mission, particularly in the informal exercise and scenario-based training events. The goal of this baseline is to apply throughout an analyst's career: from private to sergeant major and from lieutenant to general officer. The baseline will be tiered in order to ensure progressively more advanced concepts and challenging training are presented to analysts over the course of their careers.

The development of this baseline is approached as follows. First, the concepts of critical thinking and structured analysis will be introduced. These will be connected to the inherent duties of intelligence analysts. Second, existing critical thinking elements from across the DOD and IC (including those that reside outside of the intelligence profession) will be reviewed. Next, the DOD solution is described, which incorporates the best elements of critical thinking training from across these national security sectors. Finally, barriers to implementation will be examined and recommendations for overcoming these barriers will be offered.

Before examining the potential solutions, it is important to define critical thinking and structured analysis and explain why these are vital to the intelligence analyst. Lewis Vaughn succinctly defines critical thinking as "the systematic evaluation or formulation of beliefs or statements, by rational standards."[10] Watson and Glaser expand upon this, viewing critical thinking as a composite of attitudes, knowledge, and skills.[11] A true critical thinker is one who combines an attitude of inquiry with knowledge of the nature of inferences, abstractions, and generalizations, and has the skills to employ and apply this attitude and knowledge.[12] Peter Facione describes the necessity of maintaining a critical spirit: "a probing inquisitiveness, a keenness of mind, a zealous dedication to reason, and a hunger or eagerness for reliable information."[13] Critical thinking is therefore about maintaining an open mind, taking nothing for

granted, and continually asking *why* and *how*. Critical thinkers know their own biases and constantly seek the objective truth, building the best argument based on concrete facts.

Structured analysis, on the other hand, can be viewed as a "'box of tools' to help the analyst mitigate the adverse impact of one's cognitive limitations and pitfalls."[14] These techniques "help the mind think more rigorously about an analytic problem" and ensure key "assumptions, biases, and cognitive patterns are not just assumed correct but are well considered."[15] Combined with a foundation in critical thinking, structured analytical techniques can help intelligence analysts generate, evaluate, challenge, or test current assessments.[16] These techniques include problem restatement, red teaming, "what if" analysis, argument mapping, and many others.[17] Intelligence analysts who are trained to think critically and given these structured analysis tools should be far less likely to repeat the mistakes of the IC prior to the 2003 invasion of Iraq.

Within the Department of Defense, the most comprehensive critical thinking formal training is found at the Defense Intelligence Agency. The Defense Intelligence Strategic Analysis Program (DISAP) "provides a road map for developing and maintaining analytic capabilities" throughout an analyst's career.[18] It provides the analytic foundation for DIA's analysts, ensuring they can meet challenges while enabling knowledge to be passed to the next generation.[19] Most importantly, DISAP establishes criteria for meeting the DIA's five core and nine unique competencies.[20] The program specifies an analyst's expected ability at the "full performance," "senior," and "expert" levels, which analysts should attain throughout the course of their careers.

DISAP is composed of three competency-based levels (tiers), spanning over ten years of training.[21] Level I is for the agency's newest analysts, covering from initial training up to four

years of service.[22] During this time, analysts will take courses in Critical Thinking and Structured Analysis (CTSA) and Fundamentals of Intelligence Analysis, and apply this to specific topics or issues. Level II training is conducted between four and ten years of service, and applies to mid-level civilians, officers, and non-commissioned officers (NCOs). Personnel are trained via a nine-course "Advanced Intelligence Analysis Workshop" curriculum, and the goal for this level is for analysts to achieve Full Performance or Senior competencies.[23] Finally, DISAP Level III is designed for personnel with over ten years of experience to achieve their Expert competencies. Level III training includes Senior Intelligence Analysis Seminars focused on improving tradecraft methodologies and tools.[24]

The Sherman Kent School for Intelligence Analysis provides foundational and advanced instruction for each of the Central Intelligence Agency's (CIA) analysts.[25] New intelligence analysts are introduced to the tradecraft of analysis via the Kent School's Career Analyst Program (CAP).[26] CAP includes eleven weeks of classroom instruction, during which the students are introduced to analysis, writing, briefing, teamwork, and the business of intelligence, and a five-week interim assignment.[27] One of the essential focus areas for CAP is questioning key assumptions and considering possible explanations and outcomes.[28] "Analysts learn to be aware of psychological, cultural, and informational factors that affect their analytic judgements."[29] CAP is very hands-on, incorporating many small group exercises to help the analysts learn by doing.[30] Both historic case studies and real-world current intelligence are incorporated throughout the course, enabling analysts to practice building and critiquing assessments.[31]

A major component of the US Army's critical thinking training is concentrated at the service's University of Foreign Military and Cultural Studies (UFMCS). The mission of this

school is "to develop Army leaders who maintain the cognitive edge when operating in complex and rapidly changing operational environments."[32] The UFMCS has four pillars upon which its curricula are based: fostering cultural empathy, self-awareness & reflection, decision support & groupthink mitigation, and applied critical thinking.[33] In order to educate soldiers in these pillars, the school trains its students in the foundational structured analysis technique of "Red Teaming."[34]

UFMCS publishes the Army's *Red Team Handbook*, in which it defines Red Teaming as "a flexible cognitive approach to thinking and planning" which can be tailored to any situation or mission.[35] The ultimate goal of Red Teaming is to improve understanding, generate more options across all ranks, improve decisions, and protect teams from the "unseen biases and tendencies inherent in all of us."[36] UFMCS operates multiple resident courses throughout the year focused on teaching red teaming, applied critical thinking, and groupthink mitigation.[37] These courses range from two through eighteen weeks long.[38] The school also conducts mobile training with custom-tailored curriculum at organizational locations to improve access to these tools.[39]

The US Air Force (USAF) and Navy distribute critical thinking training throughout their intelligence enterprises, although initial training is usually insufficient or non-existent. Little to no formal training is provided to enlisted USAF intelligence analysts during their initial technical school at Goodfellow AFB, TX.[40] Enlisted US Navy Intelligence Specialists face the same dilemma at their class "A" school in Dam Neck, VA; no critical thinking or structured analysis education is introduced unless the sailors attend specialized courses during their operational assignments.[41] USAF intelligence officers do get a short block of critical thinking-specific education during their initial training, but it is insufficient and only intended as an introduction to the discipline.[42]

In order to increase opportunities for critical thinking training within the USAF intelligence community, Goodfellow AFB's Critical Thinking and Structured Analysis Course (CTSAC) was created in 2017.[43] CTSAC is designed around the claim that "analysts learn by doing" and is open to Senior Airmen through Lieutenant Colonels as well as DOD civilians.[44] The course is three weeks long (15 academic days) and is offered 7-9 times per year with a maximum of 18 students per class.[45] It is structured in four blocks: orientation, fundamentals of intelligence analysis, critical and creative thinking, and analytic methodology.[46]

Outside of CTSAC at the Air Force's intelligence hub, this training has even filtered down to the group level. The 480th Intelligence, Surveillance, and Reconnaissance (ISR) Group at Ft Gordon, GA offers an in-house critical thinking, writing, and briefing course called the Analytic Foundations Initiative.[47] This course was designed for new Airmen to bridge the skills gap between their technical schools and fully competent operational duty.[48] First launched in early 2016, "Analytic Foundations forces students to understand the 'why' before they understand the 'what' of their jobs" and focuses on combatting biases, source credibility, and seeing the bigger picture during their operational analysis.[49] Even with these emerging opportunities though, relatively few USAF analysts are able to attend these in-residence courses, and no formal critical thinking education is required of these Airmen.

In order to combat this, good supervisors may informally conduct training with their teams on a weekly or monthly basis. Intelligence officers and NCOs can task their subordinates with researching an emerging world event or new threat system and producing an assessment of that topic.[50] This assessment is then briefed in the form of a Current Intelligence Briefing (CIB) or Threat of the Day (TOD).[51] A discussion then follows, with the team given the opportunity to question the assessment and offer alternative thoughts and views of their own. Agreeing that

"analysts learn best by doing," these informal assessments and discussions give analysts the ability to practice their tradecraft in a non-threatening, low-risk environment in order to enhance their skills and learn from others.[52] Supervisors can enhance these discussions by reminding their teams of cognitive and cultural biases, and asking how such biases could have subconsciously affected these assessments.

Outside of the intelligence community, graduates of the United States Air Force Weapons School (USAFWS) are widely recognized as life-long critical thinkers. This is due, in part, to how the school teaches its students to approach problems. Throughout their six-month training, students are given open-ended problems, limited resources, and a number of constraints, and they are expected to create the best plans possible to satisfy the mission objectives.[53] In creating this plan, they must prepare for the best-case scenario, the worst case scenario, and all possible contingencies in between.[54] This leads to an environment of constant questioning—is this the best route? What if the enemy were to respond in this manner? What if this system fails?

Once this plan is created, it must be briefed and *defended*, similarly to how a Ph.D. thesis is defended. Instructors ask: why is this plan best? Did you think of this alternative? What if this happens at this time? Students then fly or simulate the mission and see these plans play out in real-time. They must think critically in order to adapt to unexpected events and contingencies. Finally, these missions are debriefed as a group. The students must determine what worked and what did not. Root causes are identified and instructional fixes are offered. In this method, students learn how their problem-solving approach must be adjusted for the next scenario, and they develop a keen sense of critical thinking in doing this.

Finally, the USAF's remotely-piloted aircraft (RPA) community regularly exercises critical thinking fundamentals through scenario-based training (SBT). In order to achieve

Combat Mission Ready (CMR) status, RPA crewmembers must accomplish a verification exercise. Much like USAFWS events, crewmembers are given objectives, resources, and constraints, and expected to plan the best possible executable mission. Planning is conducted over a 4-day period, in which threats and targets may change throughout the week. The crew is forced to think critically, anticipating and adapting to these changes. Finally, the crew briefs their plan to the squadron. Instructors and leadership then ask questions, attempting to inject contingencies or poke holes in their plan. In order to attain CMR status, the crew must successfully defend their chosen course of action and describe how their plan will be adapted to different potential problems encountered during the mission.

Building from these verifications, live-virtual constructive (LVC) events enable personnel to actually execute these planned missions in real-time. "LVC blended test and training links live platforms with manned simulators in virtual environments that can add constructive forces."[55] "White Force" and "Red Force" personnel can manipulate elements of the scenario, in both the live and virtual environments, in order to inject problems, simulate enemy reactions, and adjust targets, forcing these crews to think critically in order to adjust their plan. This SBT presents the best opportunity for crewmembers to think critically in order to adapt to changing circumstances.

The comprehensive and enduring DOD-wide solution for intelligence analysts combines elements from each of these communities. First, the foundation of all critical thinking skills training and formal baseline should follow the DIA's DISAP. This program is the gold-standard for formal academic education in intelligence analysis and critical thinking, and it already resides within the DOD. All new officer, enlisted, and civilian intelligence analysts should complete the mandatory Level I training in accordance with the DISAP structure. O-3s/O-4s and E-5s/E-6s

should attain their Senior competencies via Level II training by 14 years of service. O-5s/E-7s and above will becomes Experts in the Level III tier.

In order to ensure all analysts (of every rank) have access to this training, video teleconferencing capability (VTC) will be used to broadcast CTSA and similar courses across all military installations. As the DOD becomes more knowledgeable of this training and as more instructors are created, the training can be conducted from different bases on a global scale, with the ability to dial in via VTC to each of these locations. Level II and Level III analysts will serve as facilitators and instructors at each base, and these individuals will tailor the DIA training to the unit's specific missions during hands-on portions of the course. They will also be able to answer questions and assess student learning. Commanders and supervisors will be expected to manage their personnel in order to meet these tiered training requirements throughout the member's career.

The second element of this baseline will be mandatory (albeit informal) practice via CIBs, TODs, and discussions. An analyst will be required to perform a minimum number of these assessments each month or each year in order to be eligible for advancement to the next tier (i.e. progress from Level I to Level II). Such practice is vital to ensuring analysts remain proficient in preparing effective assessments, thinking critically in order to judge their own assessments and inherent biases, and are comfortable questioning their peers. These informal briefings and discussions should incorporate structured analysis techniques in order to evaluate, challenge, and test these assessments. In this manner, the ultimate goal is to better all of the unit's analysts through slow, incremental learning over many years.

Finally, scenario-based training should be incorporated throughout an analyst's career in the form of capstone exercises. Ideally, SBT events such as verifications and LVCs would be

mandated after all initial training has been conducted in a unit's mission, and just before that analyst was blessed as "mission ready." SBT not only exposes the trainee to a rigorous and challenging scenario, but it is an excellent way for instructors and supervisors to assess the analyst's readiness.

The SBT should be conducted with all of the unit's mission partners, if able. For example, analysts at a distributed common ground station (DCGS) specializing in RPA full motion video (FMV) should plan and execute the verification or LVC with the RPA unit, as well as other supporting/supported units such as an Air Operations Center (AOC). This enables the most realistic training, as analysts must work with real people in a dynamic scenario in order to achieve the mission objectives. The formal and informal critical thinking training will pay off as analysts must develop most likely and most dangerous COAs for the enemy, predict enemy actions, capabilities, and responses, and prepare for a potentially endless list of contingencies.

The LVC concept allows all of this planning to play out, further enhancing an analyst's training and enabling instructors acting as White and Red Force to inject unanticipated events. As analysts reach Level II and Level III certification, they will become natural instructors for such SBT exercises. They can draw from the Army's Red Teaming in order to think like the enemy and help their students anticipate contingencies. These instructors will also literally "play the enemy" during SBT in their White and Red Force roles, and this Red Teaming training will become extremely effective as they offer their students the most realistic and challenging scenarios. These scenario-based training events will offer excellent capstone opportunities following each analyst's exposure to the formal and informal critical thinking curricula. SBT enables this vital training to be applied in methods that would be impossible within the classroom.

Implementing this baseline should be a priority for intelligence units across the DOD. Despite the potential benefits of this curriculum, though, there will certainly be barriers to its implementation. Given the tremendous importance of these fundamentals to intelligence analysts, it is important to consider why such a baseline has yet to be established. The need for this education has existed for decades. Even before the technology existed to enable the VTC and LVC, a distributed network of instructors and scenario-based training exercises could have been created. Why has the problem persisted across each service and each intelligence unit?

The reason for this persistence is most likely found in the bureaucratic structure of the DOD and the uniqueness of each unit's intelligence mission. Because the DOD encompasses the DIA and each military service, personnel tend to develop a service-centric or unit-centric view to how their mission can best be accomplished. Indeed, each mission is its own "unique and delicate snowflake," and only that organization knows best how to train its personnel to accomplish that mission.[56] This explains why each intelligence community agency has its own unique critical thinking training, and why this education has been re-created in organizations as small as USAF Wings and Groups. These lower-level units likely believe that courses such as CTSA and CAP are far too generic to be applied to their critical and specific mission sets, and therefore a course must be created which can be tailored to the unit's unique mission.

Establishing this vital foundational baseline in critical thinking is too important for it to be lost in the complexity of the Defense beaurocracy and inter-/ intra-service fighting. Critical thinking is applicable to the entire Defense enterprise, not just to individual intelligence units in their own specific ways. In order to overcome these barriers to implementation, each subset of this baseline will be specially tailored to the unit and its specific missions. As mentioned previously, the formal academic training based on DIA's DISAP will be facilitated with local

instructors. The hands-on classroom-based scenarios will be focused on the unique missions practiced by that unit after some initial instruction in critical thinking and structured analysis. Informal discussions will emphasize current events and threats that are essential to each unit's geographic focus and mission areas. During SBT events, units will cooperate with mission partners in realistic scenarios specific to those organizations. This specificity allowing the curriculum to be tailored to each unit should be stressed to these organizations and their leadership during implementation. In this way, the hope is that this common approach is able to be adopted easily and with minimal opposition.

Thus, a comprehensive baseline for intelligence analysts is assembled through the assessment and amalgamation of critical thinking training approaches from across the DOD and IC. This baseline incorporates formal classroom-based instruction, informal and recurring practice, and scenario-based training capstone events in order to most effectively ingrain life-long critical thinking skills in analysts. A tiered structure will be borrowed from the DIA's DISAP and applied to the DOD intelligence community as a whole in order to establish this common framework. This structure will dictate the natural progression throughout an analyst's career, and will establish milestones each analyst must achieve in order to advance. Technology such as VTC will enable this training to be taught to the most junior officer or enlisted analyst, while more senior instructors facilitate this training. Informal discussions and SBT will further tailor this training to the unit's mission, and ultimately allow critical thinking skills to be practiced in exercises where decisions do not have life or death consequences. This framework will create a new class of analysts who retain and exercise their critical spirits throughout their careers.

Indeed, as vital as the critical thinking is to the intelligence community, it is equally valuable to the entire Department of Defense. Each soldier, sailor, marine, Airman, and space professional must have the same innate inquisitiveness and understanding of biases that the IC stresses on its analysts. Each service member, whether junior enlisted or commanding officer, is responsible for continually seeking to find ways in which the mission objectives can be achieved more efficiently and effectively. They are responsible for adapting to dynamic and challenging environments. Doing this requires the ability to think critically. This baseline should therefore ultimately be expanded to apply to every Defense Department enlisted member, officer, and civilian. It is the author's hope that personnel trained through this framework will be far less likely to fall into the same traps as those analysts did with Iraq over fifteen years ago.

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Notes

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