

**Building a Better Strategic Analyst:  
A Critical Review of the U.S. Army's All Source  
Analyst Training Program**

**A Monograph  
by  
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## Abstract

Building a Better Strategic Analyst: A Critical Review of the U.S. Army's All Source Analyst Training Program by MAJ Daniel M. Allen, U.S. Army, 52 pages.

In the aftermath of September 11, 2001, the intelligence community saw a dark shadow cast across itself. Though the specific intelligence failures cannot yet be determined, there are some known pieces of information. The success of intelligence during the Cold War, a predictable bi-polar war, resulted in a strategic intelligence system that supported the information requirements of that bi-polar world. Our intelligence analyst trained to use deductive skills to quantitatively determine the internal and external jostling of the bi-polar system. Since the end of the Cold War, America's adversaries have undergone significant transformation moving away from standing formation armies prepared for force on force battles. Rising from the ashes of the relatively predictable bi-polar global system are new networks and bands of ideologically and culturally motivated groups capable of exercising the power of globalization while taking advantage of both tacit and complicit state support. While US military analysts ardently constructed a mostly quantitative method of analysis to determine how former adversaries executed their game plan, the cultural complexities of the current global construct do not behave in manners friendly to this form of analysis beyond the local tactical level. Accordingly, senior intelligence analysts, in particular, now find themselves ill equipped to understand, much less predict, our nation's new real and potential adversaries.

This monograph explores the development of intelligence analysts from their indoctrination through positions of senior intelligence analysts charged with scrutinizing strategic concepts and providing strategic recommendations. It compares current methodologies used to produce adaptive, effective senior intelligence analysts necessary for today's complex battlefields in non-Department of Defense agencies to those used within the United States Army. It seeks to answer the question: does the intelligence school in the United States Army prepare its intelligence analysts properly through training and education for roles as senior intelligence analysts?

The results of this analysis identified three major observations. The first is that the current Army system does little to encourage individual innovation, imagination or creativity. The second is that the education, training, and evaluation system does little in the way of truly preparing an analyst for success in the senior analyst realm. Finally, the Army does not use the proper terminology for what it wants. The term analyst is reductionist and deductive by definition. The Army truly identified the need for an individual who can think deductively, inductively and abductively with the ability to synthesize all those ideas into something more predictive in nature. In short, the Army is not seeking an all source analyst as much as an all source "synthesist" or "fusionist". This is especially true in the strategic, senior intelligence analyst positions, helping to shape senior leaders' ideas of the situation the Army faces today and tomorrow.

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## Introduction

In the aftermath of September 11, 2001, the Intelligence Community (IC) saw a dark shadow cast across itself. Hearings were called and tough questions were asked by and of the lead intelligence agencies directors as to what went wrong. Though the answers cannot yet be determined, there are some known pieces of information. Failure to adjust strategic policies or outright arrogance in denying potential adversaries led to the inevitable downfall of many great civilizations. Thucydides pointed out the folly of Athenian “realpolitik” laced with hubris nearly 2500 years ago in his recount of the Melian Dialogue in which the Athenians stated those with power do what they want, while those without do what they must.<sup>1</sup> That same political realism, defined in international relations as explaining international behavior in terms of pursuing national interest void of moral sentiments, which countries or observers may have, jumped to the forefront after War World II.<sup>2</sup>

The Cold War between the United States and the Soviet Union was a predictable bi-polar war in which all actions were taken in the context of advancing the real power of each of the two superpowers.<sup>3</sup> As a result, the United States built a strategic intelligence system that supported the information requirements of that bi-polar world. Our intelligence analysts trained to use deductive skills to quantitatively number crunch and determine the internal and external jostling of the bi-polar system. Since the end of the Cold War, America’s adversaries have undergone

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<sup>1</sup> Robert B. Strassler, ed., *The Landmark Thucydides: A Comprehensive Guide to the Peloponnesian War* (New York: Touchstone Books, 1998), 352. Thucydides cites this hubris as one of the main reasons for the demise of the Athenian Empire. In fact it may be argued that Thucydides historical piece en total may be an excellent warning to those “empire”-like civilizations on what not to do.

<sup>2</sup> Martin Hollis and Steve Smith, *Explaining and Understanding International Relations* (New York: Touchstone, 1990), 10.

<sup>3</sup> There is much discussion historically whether the bi-polar world of the Cold War was stable or peaceful, but most authors agree that it was mostly predictable. See David Mosler, *Global America: Imposing Liberalism on a Recalcitrant World* (Westport: Greenwood Publishing Group, 2000), 3; Eric J. Hobsbawm, *The Age of Extremes: A History of the World, 1914-1991* (New York: Vintage Books, 1996), 255; Gerd Nonneman, *Analyzing Middle East Foreign Policies and the Relationship with Europe* (New York: Routledge Publishing, 2005), 28.

significant transformation moving away from standing formation armies prepared for force-on-force battles. Rising from the ashes of the relatively predictable bi-polar global system are new networks and bands of ideologically and culturally motivated groups capable of exercising the power of globalization while taking advantage of both tacit and complicit state support.<sup>4</sup> A U.S. Army intelligence manual states, “The missions facing today’s Army are more varied than ever before, with increasing emphasis on stability operations and support operations...This shift in focus will require Intelligence officers to think on their feet in new uncharted operations and be adaptive planners in nontraditional roles for combat forces. They will have to conduct the same, if not higher, quality of resolution of analysis regarding the adversary.”<sup>5</sup> While U.S. military analysts ardently constructed a mostly quantitative method of analysis to determine how former adversaries executed their game plan, the cultural complexities of the current global construct do not behave in manners friendly to this form of analysis beyond the local, tactical level.

There are, of course, many different theories as to how our adversaries evolved. Samuel Huntington described a “clash of civilizations” in his book of the same title. Huntington asserted it will not be nation states against each other but entire civilizations pitted against each other. His argument is interesting in that civilizations evolve and are not tied to politics but culture and, therefore, do not operate as status quo governments. In fact, civilizations cross existing state lines and interact across them regardless of governmental desires.<sup>6</sup> Thomas P. M. Barnett described a

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<sup>4</sup> Richard N. Hass, project director, “Making Intelligence Smarter: The Future of U.S. Intelligence,” Report of an Independent Task Force sponsored by the Council on Foreign Relations, 2007. <http://www.fas.org/irp/cfr.html> (accessed November 9, 2007).

<sup>5</sup> U.S. Army Intelligence Center and School, FM 34-130 (Draft), *Intelligence Preparation of the Battlefield*, (Fort Huachuca, AZ: GPO, 2000), v.

<sup>6</sup> Samuel P. Huntington, *The Clash of Civilizations and the Remaking of World Order* (New York: Touchstone, 1996), 44. A common criticism of Huntington’s work is that it essentially bifurcates civilizations along religious fault lines. However, Huntington has hit upon an important idea on page 21 of his book when he posits that indeed post cold-war distinctions are not necessarily ideological, political or economic but instead people “define themselves in terms of ancestry, religion, language, history, values, customs, and institutions. This questions the future effectiveness of Realist Politics in a world not dominated by those ideas.



more globalized world with conflict erupting between those nations who have access and those who do not. More specifically, he described a core of “functioning” states within the confines of globalization and a set of “gap” states everywhere else.<sup>7</sup> His contention was conflict erupts in those gap states that fail to modernize with the rest of the world.<sup>8</sup> Thomas Friedman used a more broad approach in describing a globalized world where individuals and multi-national corporations are empowered to act where once only nations could. His disputation was the individual rises to the forefront, not requiring the resources or status of their own state to leverage international power.<sup>9</sup> U.S. Army doctrine describes our new adversaries by the term Contemporary Operational Environment (COE). The COE is defined in Army doctrine, FM 7-100 (OPFOR Doctrinal Framework and Strategy) as the operational environment that exists today and for the clearly foreseeable future. The term is hinged upon some basic tenants of the operational environment that is constantly changing: the nature and stability of the state, regional and global relationships, economics, sociological demographics, information, physical environment, technology, external organizations, national will, time, and military capabilities.<sup>10</sup> It is designed to be specific enough to train against, yet flexible enough to morph into different challenges.

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<sup>7</sup> Globalization in this context is defined as the modernization of the world’s financial and information systems to the point of relatively unrestricted collaboration.

<sup>8</sup> Thomas P. M. Barnett, *The Pentagon’s New Map: War and Peace in the 21<sup>st</sup> Century* (New York: The Berkely Publishing Group, 2004), 121-144. Barnett makes a compelling argument that most conflicts, post Cold-war, have been in the “gap” states that he describes in his book.

<sup>9</sup> Thomas L. Friedman, *The World is Flat: A Brief History of the Twenty-First Century*. (New York: Farrar, Staus and Giroux, 2005). Although Friedman is not a social scientist, his insight into globalization is not without merit. His idea of a “triple convergence” of new players (international access despite origin), on a new playing field (unprecedented technological advances in computing and communication), with new habits (reaching out globally instead of locally) is interesting concerning interests of non-state actors. In his previous book, *Lexus and the Olive Branch*, he proposed nations either choose to globalize or not based upon cultural norms. He has since changed to reflect companies and individuals having the same opportunities in the global economy and information stream as countries.

<sup>10</sup> U.S. Army Training and Doctrine Command, FM 7-100, *OPFOR Doctrinal Framework and Strategy*, (Fort Monroe, VA: GPO, 2003), i-iv. The nature of the adversary is based upon the idea that the U.S. will have no peer competitor prior to 2020 and that nations will put their militaries in the field to pursue national interests. More on this idea appears in the 3<sup>rd</sup> Segment of the monograph reference military training.

Despite what new ideas emerge, the world has changed from its cold-war posture, and while there are volumes of excellent current work defining the U.S.'s new potential adversaries or conflicts, this monograph would do an injustice in trying to cover them all. Nevertheless, it is sufficient for this author to conclude a vast majority of the work being produced, with few outliers, agree that our new adversaries are playing with new rules. Those rules include exhibiting new behaviors, building new relationships, and mastering new competencies to counter the U.S.'s current capabilities. Accordingly, senior intelligence analysts, in particular, now find themselves ill equipped to understand, much less predict, the nation's current and potential adversaries.<sup>11</sup>

## **Problem**

Current methodologies, training, education, and habits are not preparing intelligence analysts to succeed in their given field.<sup>12</sup> The difference between existing threats and those the U.S. accurately identifies poses a daunting problem. A lack of consensus regarding consequences of these various possible futures further complicates matters of exactly what the U.S. should or could do to affect them. This is exacerbated by the inability of intelligence analysts to change and grow within their existing environment. As a result, the U.S. Army's strategic intelligence analysts are not prepared to render adequate analysis to the complex problems in today's world. This is a product of antiquated doctrine leading to training and education processes that are remnants of a Cold War Army. The intelligence community as a whole has not recognized that the prevailing intelligence challenges are not penetrating denied areas of an adversary, but is instead understanding "denied minds" requiring a shift in educating and training of the analyst

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<sup>11</sup> The term senior analyst is one that will be explored and defined later in the monograph. There is no unifying terminology within the intelligence enterprise to describe the idea used in this monograph.

<sup>12</sup> David Brooks, "The Elephantiasis of Reason," *The Atlantic Monthly*. (January/February, 2003): 34-35.

and the collection of the information the analyst needs.<sup>13</sup> The U.S. Army currently fails to provide intelligence analysts with the humanities, social sciences, and critical thinking training and education required for strategic level analysis.

## **Purpose**

This monograph explores the development of intelligence analysts from their indoctrination through positions of senior intelligence analysts charged with scrutinizing strategic concepts and providing strategic recommendations. It compares current methodologies used to produce adaptive, effective senior intelligence analysts necessary for today's complex battlefields in non-Department of Defense (DoD) agencies to those used within the U.S. Army. It seeks to answer the question: does the intelligence school in the U.S. Army prepare its intelligence analysts properly through training and education for roles as senior intelligence analysts?

The methodology is primarily qualitative research focused on describing, analyzing and synthesizing previous data collected on intelligence analysis and its processes. Involved is historical inquiry to specify why some intelligence analysts acted, and reached conclusions, in the manner they did; however, the focus will be on methods of analyst training, and identifying those characteristics most associated with success and failure. The primary sources will include actual analysis (where available due to classification), testimony and interviews, commission and think tank conclusions, and overall observations on intelligence given to policymakers.

## **Scope**

As stated, there are countless new ideas about what our next conflict(s) and adversaries will be. This monograph does not attempt to describe or cover in detail any of these. Instead, it

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<sup>13</sup> Jeffrey R. Cooper, *Curing Analytic Pathologies: Pathways to improved Intelligence Analysis* (Pittsburgh: Government Printing Office, 2005), 41.

focuses at the level of the senior intelligence analyst, looking particularly at strategic issues, and how they can be better trained and educated. Moreover, the majority of intelligence reform, post 9/11, is not covered here as the event is too recent in history for conclusions to be definitive. What is compared are the concepts of what specifically makes successful senior intelligence analysts for policymakers to the methodology currently used by the U.S. Army in preparing such a strategic focused military analyst.

This study defines the qualities that most often lead to success and failure of analysts at the strategic level followed by a description of the current model the U.S. Army uses to develop their senior intelligence analyst. Amidst exploring these concepts, this monograph answers seven crucial questions; what function does humanities training serve in analysis? What function does experience serve in analysis? What is the role of mentorship in growing an analyst? How is analyst training conducted in the Army? How is analyst training conducted in interagency organizations (Central Intelligence Agency [CIA], Federal Bureau of Investigation [FBI], and National Security Agency [NSA])? What are measures of performance in analysis? How would education, in theory, aid intelligence analysts: systems, complexity, emergence theories? With these questions answered, scrutiny determines the key characteristics symbolizing both the successful education of senior intelligence analysts and those common with failure. Finally, from these, derived suggested solutions are formed that nurture the former and eliminate the latter.

## **Results**

The results of this analysis identified three major observations. The first is that the current Army system does little to encourage individual innovation, imagination or creativity. The second is that the education, training, and evaluation system does little in the way of truly preparing an analyst for success in the senior analyst realm. Finally, the Army does not use the proper terminology for what it wants. The term “analyst” is reductionist and deductive by definition. The Army truly identified the need for an individual who can think deductively,

inductively and abductively with the ability to synthesize all those ideas into something more predictive in nature. In short, the Army is not seeking an all source “analyst” as much as an all source “synthesist” or “fusionist”. This is especially true in the strategic, senior intelligence analyst positions, which help to shape senior leaders’ ideas of the situation the Army faces today and tomorrow.

## **Definitions**

The IC is one filled with numerous, varied, and redundant acronyms. In an attempt to maintain clarity, the following acronyms and definitions are provided to the reader:

The **IC** is comprised of the CIA, FBI, Department of Treasury, Department of Energy, Department of State, and elements of the DoD and is directed by the Director of National Intelligence as seen below in Figure 1.

**AOR** *Area of Responsibility*

**COA** *Course of Action*

**COE** *Contemporary Operating Environment*

**ECOA** *Enemy Course of Action*

**HPT** *High Payoff Target* Targets which if successfully attacked, will contribute to the success of friendly plans.

**IED** *Improvised Explosive Device*

**IO** *Information operations* integrated employment of electronic warfare, computer networks, psychological operations, military deception, and operations security, to influence, disrupt, corrupt or usurp adversarial human and automated decision making while protecting their own.

**IPB** *Intelligence Preparation of the Battlefield*

**ISR** *Intelligence, Surveillance and Reconnaissance*

**MDMP** *Military Decision Making Procedure*

**PIR** *Priority Information Requirements*- intelligence requirements for which a commander has an anticipated and stated priority in his task of planning and decision-making.

**POI** *Program of Instruction*

**TTP** *Tactics, Techniques and Procedures*



Figure 1 Intelligence Community<sup>14</sup>

<sup>14</sup> Adapted from a figure in U.S. Army Training and Doctrine Command, FM 2-0, *Intelligence*, (Fort Monroe, Virginia: Government Printing Office, 2004), 2-8.

## Building an Analyst

Identifying attributes of successful analysts is tricky. First, there is the question of “what is analysis?” The official Army definition reads, “Analysis is the determination of the significance of the information relative to information and intelligence already known, and drawing deductions about the probable meaning of the evaluated information.”<sup>15</sup> There is another worthy of mention. Thomas Garin describes analysis as (1) problem identification, (2) data gathering, (3) analysis, synthesis, collaboration, and examination of alternate propositions using all sources of data, and (4) direct support to consumers with briefings and publications.<sup>16</sup> Once analysis is defined, the quest turns to finding the people best able to accomplish it. There are, of course, initial traits that most intelligence agencies look for. Defense Intelligence Agency (DIA) analyst skills include technical expertise, knowledge of target and analytic techniques, search and organizational abilities, ability to synthesize data and use inductive reasoning, and the ability to express ideas.<sup>17</sup> These seem to fit within the construct of Moore’s and Krizan’s NSA profile seen in figure 2. While all of these traits are important, there are some that take precedence.

Intelligence analysis is primarily a thinking process and depends on cognitive functions that necessitate analysts manifesting behaviors that reflect thinking.<sup>18</sup> There are some abilities that are

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<sup>15</sup> U.S. Army Training and Doctrine Command, FM 34-3, *Intelligence Analysis*, (Fort Monroe, VA: GPO, 1990), 2-4. Again this is a very limiting definition and is based on old doctrine as discussed later. The latest draft version spends two pages defining analysis—a more thorough explanation of what is required of an analyst—but the damage may be done in terms of the stereotyping done towards the term “analyst”. As a result in the recommendation that perhaps the Army should change the title.

<sup>16</sup> Thomas A. Garin, “Appraising Best Practices in Defense Intelligence Analysis,” in *Bringing Intelligence About: Practitioners Reflect on Best Practices*, ed. Russell G. Swenson (Washington, DC: U.S. Government Printing Office, 2003), 84.

<sup>17</sup> *Ibid.*, 81.

<sup>18</sup> Keith Devlin, 2000. “The Role of Conceptual Structure in Human Evolution” in *Conceptual Structures: Logical, Linguistic, and Computational Issues*, 8th International Conference on Conceptual Structures, ICCS 2000, Darmstadt, Germany, August 14-18, 2000, Proceedings, eds. Bernhard Ganter and Guy W. Mineau (Berlin: Springer, 2000), 1.

ranked higher than others—specifically, three thinking abilities are found to be most important: information ordering, pattern recognition, and reasoning.<sup>19</sup>

Information ordering focuses on following defined rules to arrange data in a meaningful order that allows for the analysis, synthesis and extraction of meaning. This step is the classic analyst based reductionism fully employed. Critical tidbits of information are stripped from their larger total and then coalesced in one location for further processing.<sup>20</sup>

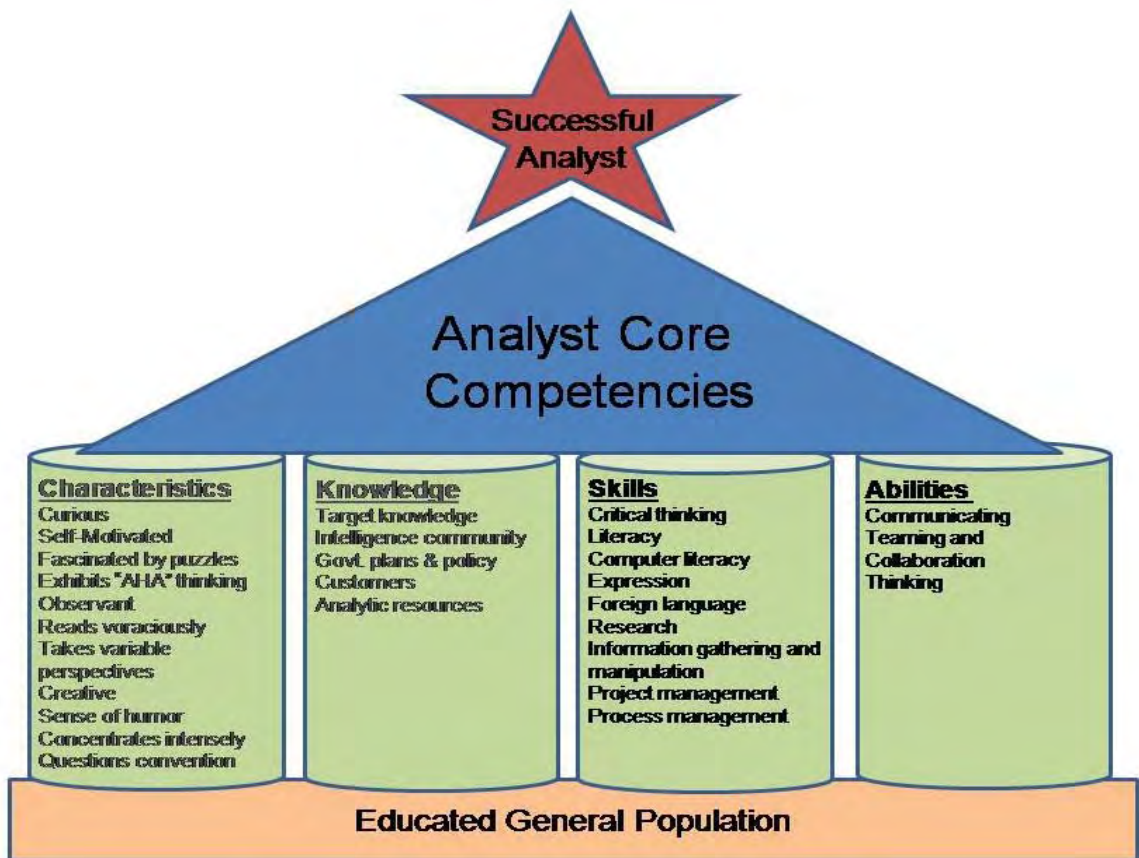


Figure 2 Analyst Competencies<sup>21</sup>

<sup>19</sup> David T. Moore and Lisa Krizan, "Core Competencies for Intelligence Analysts at the National Security Agency" in *Bringing Intelligence About: Practitioners Reflect on Best Practices*, ed. Russell G. Swenson (Washington, DC: U.S. Government Printing Office, 2003), 110.

<sup>20</sup> *Ibid.*, 110.

<sup>21</sup> *Ibid.*, 96. Adapted from figure explaining functional core competencies.



Pattern recognition defines the ability of the analyst to detect and impose patterns on random entities allowing the analyst to separate key information from the less important, even the trivial, and to visualize semblances of order out of what appears as apparent chaos. However, it should not stop there. If anything, pattern recognition should inform the next set of questions focused on the “why” of those patterns—eventually leading the analyst to derive motive for action or inaction from the patterns.<sup>22</sup>

Finally, the use of reasoning permits the formulation of explanation and in intelligence is leveraged in three ways: induction, deduction and abduction. These forms of reasoning are not inherent but must be honed as most skills through education and training.

Induction is the process of combining separate fragments of information to form general rules or conclusions. An example is a child learning to associate the color red with heat and heat with pain (as in an electrical element of a stove), and then generalizing those same associations when new situations (glowing red metal) are presented to them.<sup>23</sup>

Deductive reasoning applies general rules to specific problems to determine conclusions. An example is an analyst following a nuclear weapons program of a country might notice certain characteristics and events preceding a nuclear weapons test. Upon seeing evidence of the same characteristics or events, the analyst may deduce that another nuclear test is imminent. This specific type of reasoning was most often used in terms of Cold War analysis based on the general knowledge of Soviet tactics against specific actions they would take (i.e. Germany’s Fulda Gap defense).<sup>24</sup>

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<sup>22</sup> Ronald D Garst and Max L. Gross, “On Becoming an Intelligence Analyst”. *Defense Intelligence Journal* 6. No. 2 (Fall 1997): 55.

<sup>23</sup> Jerome K. Clauser and Sandra M. Weir, “Intelligence Research Methodologies, An Introduction to Techniques and Procedures for Conducting Research in Defense Intelligence” (State College, PA: HRB Singer, 1976), 81.

<sup>24</sup> Ibid.

Lastly, abductive reasoning describes the process of intuition that generates novel hypotheses to explain evidence not readily suggesting a familiar explanation. An example is two shipping manifests, one with lemons and oranges shipped from Venezuela to Florida and the other showing carnations shipped from Delaware to Colombia. An analyst using abductive reasoning may ask why citrus fruit is being sent to the world's primary exporter of that product. What is really going on here? Abduction leads to more research questions, not solutions.<sup>25</sup> Selection of analysts for employment often involve tests that screen for traits as the aforementioned and while the traits listed above and by Moore and Krizan are critical in the selection process of an analyst, there are education targets that can be capitalized which sow, nurture and harvest these qualities as well.<sup>26</sup>

## **Educating an Analyst**

Underpinning the reasoning process is the requirement for critical thinking. NSA's Krizan and Moore define this as,

an 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...Thinking about [our] thinking while [we're] thinking in order to make [our] thinking better.<sup>27</sup>

Another definition from David Moore, a senior technical analyst with over 18 years of experience with the National Security Agency, which may be better related to an analyst: "Critical thinking is

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<sup>25</sup> Chong Ho Yu, "Abduction? Deduction? Induction? Is there a Logic of Exploratory Data Analysis" (paper presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA, April 4-8, 1994).

<sup>26</sup> See also the monograph by George E. Lewis III, "Army Intelligence Analysis: Transforming Army Intelligence Analysis Training and Doctrine to Serve the Reasonable Expectations and Needs of Echelons Corps and Below Commanders, Consumers, and Customers" (2005), in which Chapter 4 expands nicely on Moore's and Krizan's characteristics for an intelligence analyst. While vital to establishing initial traits, it remains somewhat outside the scope of this monograph, which seeks to focus on the education process post-selection. Both Moore and Krizan are long time intelligence professionals, currently serving with the National Security Agency.

<sup>27</sup> Moore and Krizan, 113.

a deliberate meta-cognitive (thinking about thinking) and cognitive (thinking) act whereby a person reflects on the quality of the reasoning process simultaneously while reasoning to a conclusion. The thinker has two equally important goals: coming to a solution and improving the way she or he reasons.”<sup>28</sup> The idea of critical thinking cannot be underscored enough and should not be confused with formal logic or problem solving. Many schools focus on problem solving and logic as a goal oriented methodology but that is pseudo-critical thinking and does not allow for improving the process of thinking.<sup>29</sup> That very process of thinking is what drives the analyst towards abductive thinking and impels the analysts’ mode of inquiry into the abovementioned pattern recognition process.

Critical thinking also adds rigor to the analytical process by following the scientific method—hypothesis formulation, collection of information, testing and evaluation, and logical derivation of conclusions—step by step.<sup>30</sup> This allows for the evaluation of intelligence and for the autopsy of failed intelligence in a logical, verifiable method.

With the crucial role of critical thinking in analysis established, the research turns to where an analyst may expect to be taught this skill. While the term is widely used in course descriptions within university catalogs, a recent study in California (covering 38 public and 28 private universities) determined that only 19% of faculty could define the term and only 9% actually used it in their instruction.<sup>31</sup> The Intelligence community is doing better with critical thinking being taught in the CIA’s Sherman Kent School and the NSA.<sup>32</sup> Unfortunately, the Joint

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<sup>28</sup> David T. Moore, “Critical Thinking and Intelligence Analysis.” *Occasional Paper Number Fourteen* (Washington, D.C.: Joint Military Intelligence College, May, 2006): p. 2.

<sup>29</sup> *Ibid.*, 18-19.

<sup>30</sup> Steven D. Schafersman, “An Introduction to Critical Thinking,” <http://www.freeinquiry.com/critical-thinking.html> (accessed 21 December 2007).

<sup>31</sup> Moore, 62.

<sup>32</sup> Stephen D. Marrin, “CIA’s Kent School: Improving Training for New Analysts,” *International Journal of Intelligence and Counter Intelligence* 16, No. 4 (October/December, 2003):609-637.

Military College and the Defense Intelligence Agency are both still in the infancy of incorporating these course types.<sup>33</sup>

David Moore, with years of analysis and instruction of analysis behind him, opines, “Critical thinking, if conceived and employed by intelligence analysts,...appears capable of leading analysts to adopt personal habits of thought appropriate to the resolution of hard intelligence problems.”<sup>34</sup> Critical thinking is not a panacea. However, if it is practiced, many of the pitfalls of analysis and corresponding intelligence failures may be avoided.

However, education does not start and stop with critical thinking. Scrutiny on civilian education programs, that actually award degrees in intelligence analysis related studies, indicate other key elements: humanities and social sciences.<sup>35</sup> Unlike the medical field, intelligence analysis has not undergone a revolution in the sciences that underwrite it. Human sciences support intelligence analysis and they tend to be infinitely more multivariate and nearly impossible to predict, much less control. Due to the highly adaptive nature of humanity, it has proven difficult at best, to demonstrate any progress in the human sciences that one can clearly see in the fields of biology, chemistry, physics, and all of their sub-fields.<sup>36</sup> Still, if the foundation of intelligence analysis relies upon the human sciences, then it seems only logical they be part of the analysts’ curriculum.<sup>37</sup> Moreover, it cannot just be limited to social sciences as social scientists tend towards hard data collection that they can calculate, graph and use to predict future actions. This approach led to the prediction in 1961 that the Soviet economy would be three times the US economy by the year 2000. Further, social scientists likewise tend to believe that human

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<sup>33</sup> Moore, 64-65.

<sup>34</sup> Ibid.

<sup>35</sup> There are additional schools offering classes and minors in intelligence studies but they are based on the core studies of the major and are thus not included.

<sup>36</sup> Rob Johnston, *Analytic Culture in the U.S. Intelligence Community: An Ethnographic Study*, (Washington, D.C.: Government Printing Office, 2005), 43.

<sup>37</sup> Brooks, 34-35.

beings are rational actors—inferring that foreign leaders and dictators will act the same as people do in suburban Virginia.<sup>38</sup>

It is not, perhaps, the irrationality of people that leads to incorrect analysis, but the different perspectives of “rational”. Much of this is grappled with in humanities classes, allowing an analyst to understand the epistemology of oneself and others. The fields of evolutionary psychology and quantitative social epistemology inform that although the human brain has the great capacity for understanding, the conscious “I” of any human being is the smallest fraction of the entire sensing and processing taking place. Consequently, the interaction between peoples who know nothing of one another is restricted to the tiny bandwidth of what one can communicate through the small fraction of the brain that contains the conscious “I”. Compounding this problem is the connecting medium of language, which is a “one-dimensional form of meaning that is constructed from associations of parts.”<sup>39</sup> By design, this one-dimensional, narrow bandwidth drags a normal person back to the linear-analytic mode in all that they do. By the inclusion of humanities classes, an analyst can, at least, be exposed to cultural and organizational differences and nuances that can widen that narrow bandwidth of understanding. Just the permanent understanding and consciousness of the difference between the “I” fraction of one’s own brain and others is worth the investment. Many of the analysis degree-awarding institutions are offering such opportunities.

Embry Riddle Aeronautical University has awarded intelligence related degrees since 1997 and requires four classes in humanities, eleven courses in social sciences, including international relations and cultural studies, while offering countless others in the elective options

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<sup>38</sup> Brooks, 34-35.

<sup>39</sup> Chapman, Graham. 2007. Evolutionary psychology, complexity theory, and quantitative social epistemology”. ScienceDirect. Futures 39. Pp. 1067-1083.

to include philosophy, psychology and cultural communications classes.<sup>40</sup> This is fairly robust in humanities and social sciences but their objective is to develop “intelligence professionals with a broad understanding of global interrelationships in politics, economics, social change, science and technology, military developments, systems of thought, public health, the psychological dimensions of military and terrorist threats, cyber-security, environmental issues, and human cultures.”<sup>41</sup> American Military University (AMU) also has a new program of study for intelligence that more closely mirrors existing military education in technical training of intelligence sub-fields. In fact, only one class in humanities, one class in political science and two classes in social sciences are required. AMU does, however, require critical analysis (thinking).<sup>42</sup> Mercyhurst College, who first offered an undergraduate degree in Intelligence 14 years ago, has a curriculum rich with anthropology, philosophy, political science and history.<sup>43</sup> A standout, John Hopkins University offers a Master of Science in Intelligence boasting fifty percent of its course work in the humanities and social sciences fields.<sup>44</sup> The aforementioned degree programs are the leaders in the civilian market for pure analysts and focus most on humanities, social sciences and critical thinking in addition to core intelligence methodologies.

As a last shot across the proverbial bow of education, writing is an extremely important tool in the repertoire of the intelligence analyst. The propaedeutic and heuristic roles of writing

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<sup>40</sup> Embry Riddle Aeronautical University, “Bachelor of Science degree in Global Security and Intelligence Studies,” 2008 Degree Completion Requirements, <http://www.erau.edu/pr/degrees/b-gsis.html> (accessed January 3, 2008).

<sup>41</sup> Ibid.

<sup>42</sup> American Military University, “Bachelor of Art in Intelligence Studies,” 2008 Degree Completion Requirements, <http://www.amu.apus.edu/Catalog/08/undergraduate/degree/bachelor/intelligence/intelligence.htm> (accessed January 3, 2008).

<sup>43</sup> Mercyhurst College Institute for Intelligence Studies, “Bachelor of Art in Intelligence Studies,” 2008 Degree Requirements, <http://www.mciis.org/undergrad/classes.php> (accessed January 3, 2008).

<sup>44</sup> Cooper, 43.

should be instructed and used as a method for learning and discovery.<sup>45</sup> Writing is also extremely important in the delivery of products to customers in a practical fashion.

## Methodologies

We could have talked about the science of intelligence, but...the science of intelligence has yet to be invented.

—Charles Allen<sup>46</sup>

Methodologies for intelligence analysis are varied.<sup>47</sup> Primarily this is the result of the many disciplines within the Intelligence field. Each individual discipline uses its own methodologies and techniques to analyze its information. Some are more scientifically quantifiable than others. This fuels the huge debate within the literature as to whether intelligence analysis is an art or a science. However, many now proffer that it need not be an either/or proposition.<sup>48</sup> Moore and Krizan posit that successful intelligence analysis is holistic necessitating a process involving both art and science. Intuitive abilities, known aptitudes, skills and methods rigorously applied, and thorough education together empowers analysts to work in a multidimensional manner. In this way, they are able to avoid the pitfalls of both scientism and adventurism.<sup>49</sup>

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<sup>45</sup> Cooper, 43.

<sup>46</sup> Comment made by the Associate Director of Central Intelligence for Collection at a public seminar on intelligence at Harvard University, Spring, 2000.

<sup>47</sup> For techniques see: CIA's Kent Center for Analytic Tradecraft, specifically the occasional papers published by the CIA Sherman Kent School (Vols. 1-3); Courses and publications of Pherson Associates, LLC. <http://www.pherson.org/Index.html>; Kristan J. Wheaton, Emily E. Mosco, and Diane E. Childo, *The Analyst's Cookbook*, (Erie, PA: Mercyhurst College Institute of Intelligence Studies Press, 2006).

<sup>48</sup> Robert Folker, "Intelligence Analysis in Theater Joint Intelligence Centers: An Experiment in Applying Structured Methods," *Occasional Paper Number Fourteen* (Washington, D.C.: Joint Military Intelligence College, January, 2000):14.

<sup>49</sup> Moore and Krizan, 101.

There are over 200 analytic methods to choose from but the dominant form of analysis remains intuition.<sup>50</sup> This is diametrically opposed to the common, but incorrect, assumption that intelligence analysts must use various forms of scientific approaches since experience alone does not create an expert. The premise is that an expert must have a tool for structuring knowledge to efficiently solve a problem.<sup>51</sup> However, many times there are not clear tools for given problems and experience is often the only preliminary tool available to the analyst.

The shortfall exists, however, not in the lack of methodology, but in the lack of shared understanding of the available methodologies and the impetus on which to use at any given time. In fact, the multidisciplinary environment of the intelligence community leads to the assumption that a variety of methods will be used to determine a “best fit” synthesis when faced with a problem. While the individual approach has certainly helped create many viable methods, it has prevented the standardization of analyst doctrine within the intelligence community.<sup>52</sup> This is important as without a doctrine it is difficult to measure new tools and techniques against any standard, just as determining effectiveness becomes difficult. The field of analysis has been aptly compared to that of a surgeon or astronaut. Juxtaposed, all have very high performance standards and extremely low acceptable error rates. Due to the lives at stake, all have extreme pressure to avoid failure.<sup>53</sup> The comparison here is important because surgeons and astronauts follow doctrine or specific procedures and techniques but are also allowed to use experience and creativity to explore options outside that doctrine. The field of intelligence analysts conversely appears to rely predominately on intuition and less on a standardized doctrine for its foundation. The results are exactly what you currently get from the intelligence community—checkered

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<sup>50</sup> Rob Johnston, “Integrating Methodologies into Teams of Substantive Experts: Reducing Analytic Error,” *Studies in Intelligence* 47, No.1., (April, 2003):6

<sup>51</sup> Folker, 11.

<sup>52</sup> Johnston, *Analytic Culture*, xviii.

<sup>53</sup> *Ibid.*, xv.



performance. More alarming is the method under which analysts gain experience in the intelligence field. Again, the surgeon comparison is helpful. Surgeons spend years in medical school, learning their craft, followed by years of internship and residency, practicing and honing their craft under experienced mentors of medicine.<sup>54</sup> Mentorship in the intelligence community pales in comparison.

## **Mentorship**

Even with all the education provided to an aspiring analyst, there is no substitute for experience. Robert Seigler, a cognitive psychologist specializing in the development of cognitive capability, points out that regardless of age and knowledge of a concept, a particular person's position in a field is more dependent upon the experience that person has with the given field.<sup>55</sup> Analysis tradecraft is often an ill-defined process that is acquired through professional indoctrination. Unfortunately, this implies that the methods and techniques are informal, unverifiable, and at times even unexplainable, with "good" techniques being passed from one analyst to the next. The issue arising here is that "good" becomes a subjective measure, explained various ways by each analyst.

Even more problematic is the breakdown of the apprenticeship process in the intelligence field. Since there is no set doctrine for the community, the skills and traditions of the tradecraft must be passed orally, leading to loss of important knowledge with the loss of practitioners to retirement.<sup>56</sup> This mentorship process becomes the linchpin of many intelligence agencies' success as they either rely upon on-the-job experiences to educate analysts or the training provided is independent of other intelligence organizations directly hampering the ability of

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<sup>54</sup> Johnston, *Analytic Culture*, xv.

<sup>55</sup> Boyd, Dennis & Bee, Helen. 2006. *Lifespan Development*. Fourth Edition. Allyn and Bacon Publications. pp. 238-240.

<sup>56</sup> Johnston, *Analytic Culture*, 18.

analysts to collaborate. Unfortunately, the mentorship process is informal and as such, haphazard in application.<sup>57</sup>

This much is clear: the downsizing of the intelligence community in the 1990's caused most of the experienced analysts to be disproportionately reduced by the disinterest of the policy makers and the acquiescence of the senior management.<sup>58</sup> This coupled with the “up or out” policies of promotion have essentially squeezed out the analysis expertise from the intelligence community writ large.<sup>59</sup> In hindsight, the need to rebuild the mentoring system is essential. It is crucial to rebuild the pool of experienced analysts and some recommendations have suggested that training be reintegrated directly into the practice of intelligence as is done in clinical work of law and medicine. Finally, collaboration within a professional network should be encouraged instead of tolerated to gain a more complete understanding of the craft and serve as a form of apprenticeship as well.<sup>60</sup>

## **Pitfalls**

There are many pitfalls in analysis; Max L. Gross a former Dean of the School of Intelligence Studies, Joint Military Intelligence College selects a few as “biases, stereotypes, mirror-imaging, simplistic thinking, confusion between cause and effect, bureaucratic politics, group-think, and a host of other human failings.”<sup>61</sup> All of these are hard to overcome—primarily because they come so natural to the human experience. Richard Heur, a longtime CIA analyst puts it best,

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<sup>57</sup> Johnston, *Analytic Culture*, 28.

<sup>58</sup> Cooper, 36. Referred to as the “journeymen” analysts in the CIA—they are fully qualified analysts with seven years experience, equivalent to doctoral students, post-doctoral fellows, and assistant professors who build products, teach apprentices, and spread knowledge as they move from post to post.

<sup>59</sup> *Ibid.*, 37.

<sup>60</sup> *Ibid.*, 50

<sup>61</sup> Garst and Gross, 48.

[Analysts] construct their own version of “reality” on the basis of information provided by the senses, but this sensory input is mediated by complex mental processes that determine which information is attended to, how it is organized, and the meaning attributed to it. What people perceive, how readily they perceive it, and how they process this information after receiving it are all strongly influenced by past experience, education, cultural values, role requirements, and organizational norms, as well as by the specifics of the information received. This process may be visualized as perceiving the world through a lens or screen that channels and focuses and thereby may distort the images that are seen. To achieve the clearest possible image . . . analysts need more than information . . . they also need to understand the lenses through which this information passes. These lenses are known by many terms—mental models, mind-sets, biases, or analytic assumptions.<sup>62</sup>

Two common pitfalls are cultural arrogance and projection. Arrogance causes analysts to believe their nation is better than others and projection causes analysts to see others as behind or beneath them. Projection also leads analysts to assume that other cultures will view, act and think the same as the analysts’ own culture or are so inferior they are incapable of surprise and innovation.<sup>63</sup> Stephen Marrin, CIA intelligence analyst, noted that an analyst’s expertise varies on regional knowledge, discipline theory, and intelligence methods awareness. This led Mr. Marrin to agree with the CIA’s recent attempts to provide better training and integration of their analysts with other specialists in the government, private sector, and academia.<sup>64</sup>

However, that same expertise can often get in the way of anticipating radical departures because that expert knowledge of why and how things occur inclines the analyst to estimate the same trajectory for the target.<sup>65</sup> This, in turn, tends to magnify the bias confirmation by the resistance to exercising the disconfirmation process. The “expert”, for all intents and purposes,

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<sup>62</sup> Richard Heur, Jr., *Psychology of intelligence analysis*. Center for the Study of Intelligence. (New York: Novinka Books, 2006): xxi-xxii.

<sup>63</sup> Richard J. Heuer, Jr., “Cognitive Factors in Deception and Counterdeception,” in *Strategic Military Deception*, eds. Donald C. Daniel and Katherine L Herbig (Elmsford, NY: Permagon Press, 1981), 32.

<sup>64</sup> Stephen Marrin “Improving CIA Analysis by Overcoming Institutional Obstacles,” in *Bringing Intelligence About: Practitioners Reflect on Best Practices*, ed. Russell G. Swenson (Washington, DC: U.S. Government Printing Office, 2003), 44-46.

<sup>65</sup> Richard K. Betts, “Fixing intelligence,” *Foreign Affairs* 81, no. 1 (January/February 2002): 45.

begins to believe themselves as the true agent for the target and refuses to accept evidence contrary to their mindset as even plausible.

A pitfall that many do not reference is often the biggest roadblock to accurate, thorough analysis—the dreaded presentation. Working towards production is an ambush that many organizations step into unwittingly. Even with the best intentions, deadlines are imposed with product expectations required at the end. With a lack of true metrics for successful intelligence production, it becomes a number computation of who can collect the most data, process the most traffic, and produce the most reports. This simply is not conducive to good analytical practices.<sup>66</sup>

Yet another common pitfall for analysts is the “groupthink” syndrome. Many agencies fall into this trap after volumes of analysis have begun to illuminate a theory. The initial assumptions are never questioned and everyone begins to “believe” the theory and associated assumptions are right. This can be overcome by encouraging competitive and redundant analysis.<sup>67</sup>

Organizational bias and bureaucratization can often lead to various forms of sclerosis, unstoppable inertia, pettiness, and paralysis on given intelligence target sets. Based exclusively on types of intelligence collected and bureaucratic issues of budget and prestige, particular organizations build bias into analysis. This is aggravated by the desire to meet the customer’s desires (give them what they want). Simply stated, intelligence analysis is not like business—the customer is not always right.<sup>68</sup> With no check on this type of organizational behavior, many young, energetic analysts leave analysis all together or become “deadened” to the organizational restrictions. This is also the cause for many middle management types projecting a “rest in place”

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<sup>66</sup> Cooper, 33.

<sup>67</sup> Richard N. Haass, project director. “Making Intelligence Smarter: The Future of U.S. Intelligence,” report of an Independent Task Force sponsored by the Council on Foreign Relations (New York: Council on Foreign Relations Press, 1996), 11, [www.fas.org/irp/cfr.html](http://www.fas.org/irp/cfr.html) (accessed November 9, 2007).

<sup>68</sup> *Ibid.*, 11.

attitude due to the lack of fortitude to resist the organizational inertia. Further, more bureaucratization often causes inefficiencies in the timely extraction of the right information.<sup>69</sup> Often there is so much information collected within the purview of internal sub-structures that it becomes nearly impossible to collect the right pieces to the puzzle that is being pieced together. Nevertheless, before leaving bureaucratization, in its defense, it does drive the mass collection that must be sorted through as opposed to the alternative of having no information.

In many cases, the analyst works within a functional organizational structure, is not influenced by wild bias, and simply does not have the facts but is forced to reach conclusions nonetheless. Steven Marrin again points out the fallibility of analysis,

Even if the organizational problems...and perceptual impediments to accurate perception were remedied or removed, we could not expect an enormous increase in our ability to predict events because the impediments to understanding our world are so great that...intelligence will often reach incorrect conclusions. That is because human cognitive limitations require analysts to simplify reality through the analytic process, but reality simplified is no longer reality. As a result, even experts can be wrong because their expertise is based on rules which are best blunt approximations of reality. In the end, any analytic judgment will be an approximation of the real world and therefore subject to some amount of error and analytic inaccuracies—and sometimes intelligence failure—will be inevitable.<sup>70</sup>

There are numerous other pitfalls that analysts can fall prey to, but the key is education, training, mentorship and above all, critical thinking. Don McDowell, CEO of Intelligence Study Centre and a 40 year veteran of strategic analysis clarifies, “There is a clear need to educate and train intelligence analysts to use their minds...[Only] by raising their awareness can the intelligence unit be assured that the analysts will avoid the traps in being slave to conformist thought, precedent and imposed cultural values—all enemies of objective analysis.”<sup>71</sup> The case of

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<sup>69</sup> Betts, 48-49.

<sup>70</sup> Marrin, “Improving CIA Analysis,” 46-47.

<sup>71</sup> Don McDowell, *Strategic Intelligence: A Handbook for Practitioners, Managers, and Users* (Cooma, Australia: Istana Enterprises Pty. Ltd., 1998), 216.

the Soviet missiles being placed on Cuba (Cuban Missile Crisis) in 1962 is an excellent case study for how bias and lack of critical thought steered the analysts in the wrong direction.

## **The Cuban Missile Crisis Revealed**

It was during the summer of 1962 that the CIA received numerous intelligence reports of missiles being placed on the island of Cuba. The reports were, however, also accompanied by numerous outrageous reports of Chinese and Mongolian soldiers there as well. The Soviets intended to inundate the Americans with spurious data to deceive the Americans and cover their true purpose of placing missiles on Cuba. This played into the experts' opinions this could never happen right off the coast of the U.S. without knowledge.<sup>72</sup> The inductive conclusion that since some of the evidence was ludicrous, it all must be, led the experts to discount the real evidence that existed. That same inductive conclusion then led to false deductive reasoning that since the source of that data had resulted in bad information, all subsequent information from that source would be bad as well. This in turn, coupled with the analysts' conviction that missiles could not be placed on Cuba without U.S. knowledge served to "lock-in" the conclusion and resist evidence that would prove otherwise. In fact, they even went so far as to assimilate contravening data to their existing mindset. The background of irrelevant or inconsistent signals, sent by the Soviets and Cubans, intended for misdirection, accomplished the mission of obscuring the signs pointing to the truth.<sup>73</sup> Finally, confirmation bias was evident by the fact that there was no disconfirmation process occurring. No collection was aimed at disconfirming the analysts' ideas and, in fact,

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<sup>72</sup> James H. Hansen, "Learning From the Past: Soviet Deception in the Cuban Missile Crisis," *Journal of the American Intelligence Professional* Vol. 46, No. 1, (2002): 56.

<sup>73</sup> Roberta Wohlstetter, "Cuba and Pearl Harbor: Hindisght and Foresight," *Foreign Affairs* 46, No. 3. (July 1965): 691.

information that proved to be inconsistent with that prevalent theory was assimilated into the theory, discarded as false, or made undamaging on the basis of ad hoc statements.<sup>74</sup>

The case study of Cuba demonstrates that analysts would have been well served to apply critical thinking to existing assumptions and sources, as well as applying effort to the disconfirmation (much like the null hypothesis in the scientific method) process. The case study also demonstrates that, while the pitfalls are many, most are also predictable and avoidable if certain preventative measures are instituted by the organization. Perhaps a more pressing question is whether or not the intelligence community focuses on the right approach to begin with.

### **Systematic versus Systemic**

The current approach to joint intelligence is extremely systematic. Described as the intelligence cycle, it is used in some variation in all the intelligence community. It is a repeating and continuous 5 step process including planning, preparing, collecting, processing, and production. The Army has added three additional steps of analyze, disseminate and assess that occurs throughout.<sup>75</sup> While the joint process is sequential, the Army process, under the new Field Manual (FM) 2-0 is not. The process is followed in the hopes of creating a specific product. The problem is the cycle does not accurately represent the way intelligence is produced.<sup>76</sup> In fact, corrections are only generally made systematically—checking the inputs, processes, and outputs of the intelligence cycle. While these yield important possible corrections to the cycle and aid in the betterment of the analysis, it falls short in the complex environments. Rob Johnston, a postdoctoral research fellow at the CIA Center for the Study of Intelligence and a member of the research staff at the Institute for Defense Analyses, correctly points out that the cycle “assumes

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<sup>74</sup> Gil Merom, “The 1962 Cuban Intelligence Estimate: A methodological Perspective,” *Intelligence and National Security* 14, No. 3. (Autumn, 1999): 69.

<sup>75</sup> FM 2-0, 1-27.

<sup>76</sup> Johnston, *Analytic Culture*, 46.

that the process works for all objectives, regardless of complexity and cognitive demands” and “does not represent the iterative nature of the process required for meeting [intelligence] objectives.”<sup>77</sup>

Applying a systemic look at the intelligence cycle allows for a more complete, complex view of the intelligence process. Systemic approaches yield better understandings of the actual paths requests take and the methods used to complete objectives. The systemic approach demonstrates causes and effects and the impacts that other elements have on the process.<sup>78</sup> Although this still looks at the intelligence cycle as a closed system, it does provide feedback loops and aids in better intelligence production. Real complexity is added when trying to regulate inputs to that closed system and reality informs us that any system involving humans is not closed, but characterized by complexity demonstrating characteristics of openness, non-linearity, unpredictability, uncertainty and inseparability.<sup>79</sup>

While the Army should be applauded for realizing the intelligence cycle is not sequential, it still needs to recognize that strict systematic approaches to analysis will always fall short. Hard and fast rules are not the norm of intelligence analysis. In fact, the norm is littered with highly complex circumstances, inadequate information, unclear motivations, contradictory interpretations, and deep ideological and political differences.<sup>80</sup> Complexity is clearly the rule not the exception. Modern organizations are fantastically efficient because they systematically turn habits into rigid routines. These routines work wonderfully in the specific conditions for which they were designed, but rarely perform well for off-design conditions. This creates a paradox. The

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<sup>77</sup> Johnston, *Analytic Culture*, 50.

<sup>78</sup> *Ibid.*, 54

<sup>79</sup> Wulun Jin, “Understanding complexity, challenging traditional ways of thinking.” *Systems Research and Behavioral Science*. July-August 2007: p. 401.

<sup>80</sup> Stephen Gale, “Standards of Intelligence Reasoning,” *Foreign Policy Research Institute E-Notes* (November, 2003): 5 <http://www.fpri.org/enotes/20031114.americawar.gale.intelligencereasoning.html> (accessed September 26, 2007).



better an organization performs its routine tasks, the greater the danger it will not be sensitive to a change in its environment.<sup>81</sup> The reality of today's Army engagements requires systemic thinking. While the Army has begun to transform through the system of systems analysis concepts, its base procedures are still very systematic and linear.

## **Measures of Success**

Determining the success rate in intelligence products is difficult at best. It is primarily reliant upon feedback from the consumer and secondarily upon the success of whatever mission or project that the intelligence supported. The two most common methods of feedback are lack of negative feedback and increased product use.<sup>82</sup> However, these measures inevitably lead to management falling into a "bean counting" mentality, determining how many times their product was used, etc. Moore and Krizan suggest a better way is evaluating intelligence with six underlying ideas or core values:

The first idea is one of readiness. The crux of this is the basic responsiveness of the intelligence to the requirements of the customer. This is the first of many ties to understanding the customer and clearly communicating with them in order to properly address their issues.

Secondly, timeliness of intelligence is always a requirement and can be definitively evaluated. Clearly, all organizations within the intelligence community understand this requisite concept of delivering intelligence while it remains actionable by the customer. Still, two concepts are important within this idea. The notion of time-requirements being short in duration can be misleading when referring to long-term analysis that is often required in strategic intelligence. Also, the term actionable is often a sliding scale which can be easily manipulated by either the

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<sup>81</sup> Cooper, 25.

<sup>82</sup> Garin, 80.

provider or consumer of the concerned intelligence. In the final grading, however, one should always err on the side of the consumers' circumstances.

The third criterion is that of accuracy. This is often in direct opposition to the second. The evaluation here is that all sources and data must be scrubbed for technical accuracy, misperception or willful efforts to mislead. This requires a concerted effort to avoid aforementioned pitfalls and some method of proofing the product.

Fourth, the intelligence must remain objective. When final judgments are made, they must be closely scrutinized for any deliberate, self-interest based distortions or manipulations. Many times these manipulations are done to give the consumer what they want—but as stated previously in analyst pitfalls, the customer is not always right. The analyst must always stay objective even if to the detriment of the customers' wishes.

Fifth is the concept of usability. This means that the intelligence is provided in a form that is easily comprehensible and prepared for immediate application. This not only refers to the product itself, but also to the manner in which it was prepared. Customers have varying means of communications suites and the intelligence should tailor products specifically to facilitate use within the customers' automation capabilities.

Finally, the intelligence product provided to the consumer must be relevant. Intelligence must be selected and organized for the customer and potential consequences and significance of the intelligence to the consumer must be made explicit.<sup>83</sup>

## **Conclusion**

The training of analysts outside of the uniformed services of the military has taken the first bold new steps down the path to properly educating intelligence analysts vice only training them. The curriculum in academia and internal to the IC is focusing now on thinking skills and an

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<sup>83</sup> Moore and Krizan, 103.

emphasis on the humanities and social sciences that will serve as a superior base when compared to past practices.

Additionally, the IC has implemented rigor in the analysis process in an attempt to avoid the many pitfalls that exist in intelligence analysis. With less episodic interaction, there is hope that different agencies may realize less competition while increasing cooperation, effectively pooling experience to even further minimize any traps that await future analysis. The Cuban Missile Crisis serves as an example of how the system fails without proper integration and critical thought applied to the process. Methodologies are varied which proves difficult in training and standardizing, yet, simultaneously, also helpful in crosschecking the various analysts against each other.

If there was a glaring deficiency yet to address, it is clearly the mentorship program. While many career analysts remain in service, many of the mid-term analysts, who historically are the travelers pollinating the various organizations they spend time with, are dwindling in numbers. More alarming is the lack of any program to ensure knowledge is passed to younger analysts—much less the program needed to entice these key professionals into staying. Having peered into the IC's non-uniformed methodologies for building an analyst, the comparison of the U.S. Army's methodology, as well as similarities, differences, successes and shortcomings, is revealing.

## Army Analyst Training

The Army analyst training is different depending on whether you are enlisted, warrant or commissioned officer. However, all are predicated upon current doctrine and mentorship available throughout a soldier's career. To properly frame the Army's program, it is imperative to take a brief look at all three.

### Doctrine

The utility in doctrine is that it enables the organization to determine three major things: the standard level of expertise, performance requirements, and individual metrics for evaluating and developing new methodologies. Without it, there is no foundation from which to embark from or to compare new possibilities to as a way of evaluation.<sup>84</sup> The Army relies on Field Manual (FM) 2-0, *Intelligence*, FM 34-3 *Intelligence Analysis*, and FM 34-130, *Intelligence Preparation of the Battlefield* to train its analysts. A short description of all three is necessary to understand the current system of training analysts.

### FM 2-0 Intelligence

FM 2-0 is the overview of how the Army conducts intelligence. It is dated May 2004, making it one of the more current intelligence manuals. While it is difficult to keep doctrine current, there is an immediate irregularity in that intelligence is described as a "battlefield operating system" a term replaced years ago with "war fighting function". Notwithstanding some of the outdated material, this manual is the "keystone" intelligence manual and as such provides the "*what* intelligence does" as opposed to the "*how* intelligence does" vision for Army intelligence as a whole. In this, the manual is respectable, directing the reader to additional field manuals to find further information. Nevertheless, it is mostly irrelevant to the topic of this

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<sup>84</sup> Johnston, *Analytic Culture*, xviii.

monograph which seeks to discover more of the “how” intelligence conducts its business in analysis.

However, there are a few shortcomings in this FM worth noting. There is no real discussion of newer terms that acknowledge the more complex environment and problems that we face (i.e. lines of operations or systems analysis.) According to the manual, “[t]he most important all-source products are the modified combined obstacle overlay (MCOO), event templates, ECOA sketches, and the HPT list provided during initial IPB in support of the plan function.”<sup>85</sup> These are extremely important at the tactical level but are wholly inadequate for the strategic level. The MCOO is helpful in describing the battlefield environment and effects, but does not come close to capturing the narrative that is needed at the strategic level to tackle truly hard, complex problems.

In determining enemy courses of action the manual states, “Developing ECOAs is a form of predictive intelligence analysis and production.”<sup>86</sup> In the strategic realm, predicting enemy courses is sometimes a bridge too far. By way of comparison with the civilian industrial sector, with Wall Street’s mainframes, analysts and extensive collection network, there is a struggle to achieving a degree of exactness that predicts the growth of a single soybean plant. Tremendous data, files and experience have not enabled sportscasters an exact science of prediction. Yet, U.S. Army doctrine embraces a “capabilities-intentions” school of thought demanding that the S2 can and should predict the future.<sup>87</sup> Predicting the future is hard business and the requirements for predictive accuracy are so strict as to render chances of success virtually nil. The result is that most S2’s guess.<sup>88</sup> Forrest Davis premises that “predictive” in modern context results in

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<sup>85</sup> FM 2-0, 5-2.

<sup>86</sup> Ibid.

<sup>87</sup> Forrest Lamar Davis, “Predictive Intelligence: Do We Really Need It?” *Military Intelligence Professional Bulletin* 23, Issue 2. (April/June 1997): 30.

<sup>88</sup> Ibid.

discussions that are anticipatory, future-oriented, and proactive though often avoiding the definitive description of a prediction. He contends that the difference is subtle, but important with the old definition fueling reaction while the new one fuels initiative.<sup>89</sup> There is a solid argument here, as will be shown in FM 34-130's delineation of the three conditions intelligence officers must meet for effective prediction.

Additionally, even the discussion of the COE is lacking. The eleven critical variables hardly address identifying true cultural, ethnic, religious and philosophical differences of the environment. In fact, it specifies that only the composition be determined—pure demographics. Moreover, its rival is premised on a state actor and makes no mention of trans-state actors and their interplay.<sup>90</sup> While this author does not advocate training *only* for the current Global War on Terror, it would seem prudent to have the option available since it has presented itself since at least 2001 (longer if you include other Middle East issues such as the Israeli conflict).

Sadly, in Chapter 4, the manual also describes intelligence as “provid[ing] continuous intelligence input essential to the operations process” while the operations process “provides guidance and focus which drives the intelligence process,” essentially proclaiming that operations drives intelligence.<sup>91</sup> This antiquated and myopic view of military operations is well past its prime, but still exists in this keystone document.

Chapter 5 deals with all-source analysis on which this monograph focuses. “All-source intelligence production satisfies intelligence requirements. It provides an overall picture of the adversary and the battle space. It reduces the possibility of error, bias, and misinformation through the use of multiple sources of information and intelligence.”<sup>92</sup> This is clearly a difference

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<sup>89</sup> Davis, 32.

<sup>90</sup> FM 2-0, 1-23-1-27.

<sup>91</sup> Ibid., 4-2.

<sup>92</sup> Ibid., 5-2

between the Army and the rest of the IC that we have looked at previously in that the Army intends to reduce bias and error through multiple sources as opposed to enabling a critically thinking analyst. Beyond this, the manual once again merely gives a “what an intelligence analyst should do” approach. The exploration of the IPB manual is relevant and, as previously stated, it gives the preconditions for predictive analysis in the Army.

## FM 34-130 Intelligence Preparation of the Battlefield

The official version of FM 34-130 is dated 1994, though there are newer draft versions circulating since 2000. The earlier edition, which remains the only official document available today, is telling and worthy of review. This manual covers the methodology for IPB, used to aid commanders and their staffs in visualizing the battlefield. IPB is a systematic, continuous process whereby weather, terrain, and threat are analyzed within a specific geographic area. It integrates all three, as they relate to the mission within a specific battlefield environment, to determine and evaluate threat capabilities, vulnerabilities, and probable threat courses of action.<sup>93</sup> The IPB process is described and demonstrated in enough detail to aid even the beginner analysts. In the basics of this task, the manual is clear, concise and even color coded to aid the analyst in understanding the concepts of application.

One of the most important pieces found in this manual is the three-step requirement for predictive analysis. This is the only intelligence manual identified prescribing these steps and it is a glaring example for the need to update old doctrine. The first step is the necessity to “adequately analyze the friendly mission throughout the time duration of the operation; identif[y] the physical limits of the AO and AI; and identif[y] *every* characteristic of the battlefield

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<sup>93</sup> U.S. Army Training and Doctrine Command, FM 34-130, *Intelligence Preparation of the Battlefield* (Fort Monroe, VA: Government Printing Office, 1994), vii.

environment that might affect the operation [emphasis added].”<sup>94</sup> In today’s complex world, attempting to define the length of time of the friendly mission may be impossible. Certainly, identifying every characteristic in an open system like the battlefield environment is too much to ask. Meeting the first step is impossible as written.

The second step is identification of the opportunities and constraints the battlefield environment offers to threat and friendly forces.<sup>95</sup> Again, this is possible if one is operating in a closed system, but reality is not so kind. The adaptability of current threat TTPs with respect to IEDs can confirm this, though if constant vigilance is maintained one may speculate with some accuracy. The changes in technologies and TTPs make this step extremely difficult.

The final step asks the intelligence analyst to, “Thoroughly consider what the threat is capable of and what he prefers to do in like situations if unconstrained by the battlefield environment.”<sup>96</sup> This was easy during the Cold War (when these FMs were prepared, with the exception of 2-0) when the enemy was formation-based and relatively simple to template. Even the threat commanders’ identification was so well known that analysts were able to construct or download psychological profiles of them. This is not always knowable today.

Therefore, if not all three are met with certainty, an Army intelligence officer cannot doctrinally, accurately predict enemy courses of action. In hindsight, these three prerequisites seem almost inane when applied to today’s adversaries, existing in an entirely different construct from the one presented at the time of this manual’s print. To be sure, there are conventional forces in existence today across the globe that merit a more deliberate approach as prescribed in this manual, but clearly the preponderance of future employment of the U.S. Army will look dramatically different and calls for a reframe of what we expect from our intelligence officers and

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<sup>94</sup> FM 34-130, 1-3

<sup>95</sup> Ibid., 1-3

<sup>96</sup> Ibid.



analysts. More to the point, perhaps Mr. Davis has a valid point that the focus should be on capabilities vis-à-vis intentions.<sup>97</sup>

### FM 34-130 Intelligence Preparation of the Battlefield (Draft)

The latest version of FM 34-130 is still relevant in terms of a process to conduct IPB. Additionally, it does have a section which focuses on the operational and strategic concerns and, though woefully inadequate, it does serve as a starting point.<sup>98</sup> Draft FM 34-130 is dated July 2000 and is better than its predecessor in explaining how to conduct IPB methodically and systematically. As a plus, it provides methods of IPB for various mission sets and targeting. This manual is also helpful in that it provides product lists necessary for war-gaming for the intelligence analyst as well. While staying true to doctrinal steps of war-gaming, it provides the tools necessary and actions that an intelligence professional should provide during the process.<sup>99</sup> A significant improvement over previous editions, the current version removes the three steps for predictive analysis, effectively eliminating this predictive responsibility of the intelligence analyst and focuses on identifying capabilities that convert more readily into most likely ECOAs. The newest version also is about 200 pages longer with the majority of pages focused on specific IPB support to the varied operations an intelligence analyst may support.

### FM 34-3 Intelligence Analysis (Official)

Moving forward with FM 34-3, the basis for analysis, the first acknowledgement must be made that this manual was written in 1990 based on the old AirLand Battle concept and contains

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<sup>97</sup> More on this in recommendations but suffice to say intelligence officers already qualify most assessments today with such cautions.

<sup>98</sup> FM 34-130 (Draft). Chapter 5 is dedicated to recognizing the differences between tactical, operation, and strategic levels of war, though the argument could now be made that these lines are very blurred. Chapter 6 also deals with operations other than war or what is now referred to as support and stability operations.

<sup>99</sup> Ibid., 5-1 – 5-8

none of the more realistic situations that analysts are in today. The manual is also based on old adversaries and prescribed deductive analysis founded on known templates of the enemy. Chapter 5 does outline biases and their effects on analysis; however, it fails to provide solutions to the possible biases. Chapter 10, intelligence support to counterinsurgencies, may be the most relevant chapter today. It gives a very good start point for distinguishing key information useful to the analyst fighting in a counterinsurgency. Considering this document is 18 years old, it has some relevancy left, but falls short in helping to develop the professional intelligence analyst. The good news is help is on the way.

### FM 34-3 Intelligence Analysis (Draft)

The updated version of FM 34-3 will be FM 2-33.4. While this transition has not yet occurred, the latest Draft FM 2-33.4 is in circulation. There are dramatic positive changes in this document and as such it will dominate the remaining discussion of doctrine in this section. The first is the instant attention given to critical thinking. Not only is this identified as important, an entire annex (Annex A) is set aside to discuss the very point.<sup>100</sup>

The second point identified immediately is one of extending the analyst into the world of academia, outside organizations, foreign liaison, and even open source data mining. There is now a discussion of baseline analyst skills, acknowledging that intelligence analysis is both an art and science requiring time, effort and practice to fully develop. It underscores the importance of the analyst educating themselves on the methodologies but also understanding that applying them to a constantly changing adversary is an art.<sup>101</sup>

Moreover, there is a section devoted to understanding the operating environment including political issues and the importance of information operations throughout the spectrum

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<sup>100</sup> U.S. Army Intelligence Center and School, FM 2-33.4 (Draft), *Intelligence Analysis* (Fort Huachuca, AZ: Government Printing Office, 2008), 2-2.

of operations. The information section is particularly useful as it explains the importance of leveraging information to the advantage of operations and how adversaries can leverage information to affect the perception of the populace towards military operations. There is a cursory discussion of the importance of understanding the national strategy and objectives for the military commander to properly apply military power. However, the richness of the section is in its explanation of technology, how the United States military leverages it, and its shortcomings as a cure-all for warfare.<sup>102</sup>

Perhaps the greatest advancement with the new manual is in explaining the methodologies of analysis. There is an excellent section in trend analysis based upon extensive historical research on a projected AOR to include environmental and population analysis. The significance is the addition of the cultural and civil considerations that are stressed in this section. Specifically, it uses the acronym ASCOPE (Areas, Structures, Capabilities, Organizations, People and Events) for its analysis of this. There are many pages spent on examples of what is important in this analysis, some of which can be seen in figure 3 below illustrating a beginning list for each area in which an analyst can begin an inquiry. It is here that the Army also defines cultural understanding vice cultural awareness. The latter is the minimal training provided to soldiers to be aware of cultural differences to prevent misunderstandings or insensitivities when conducting operations. The former is what analyst should seek to attain and is defined as being able to see the conflict through the eyes of the enemy.<sup>103</sup> This requires in-depth research and cognitive admission of recognizing bias when approaching any analytical task. There is another 12 pages of analytical framework (again using ASCOPE) to aid the analyst in accomplishing this task. In

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<sup>101</sup> FM 2-33.4 (Draft), 2-18.

<sup>102</sup> Ibid., 2-7 – 2-11.

<sup>103</sup> Ibid., 2-49 – 2-57.

addition, it gives a methodology for a country study to get at all the trend analysis.<sup>104</sup> The other significant advantage of the new manual is the 36 pages of analytical tools that are presented. Some of them are well known to the Army community such as the MCOO and ISR matrix.<sup>105</sup> However, there are many new techniques including diagrams of each and how to best use them. This is leaps and bounds ahead of the old manual in presenting tools to the analyst to hone skills.

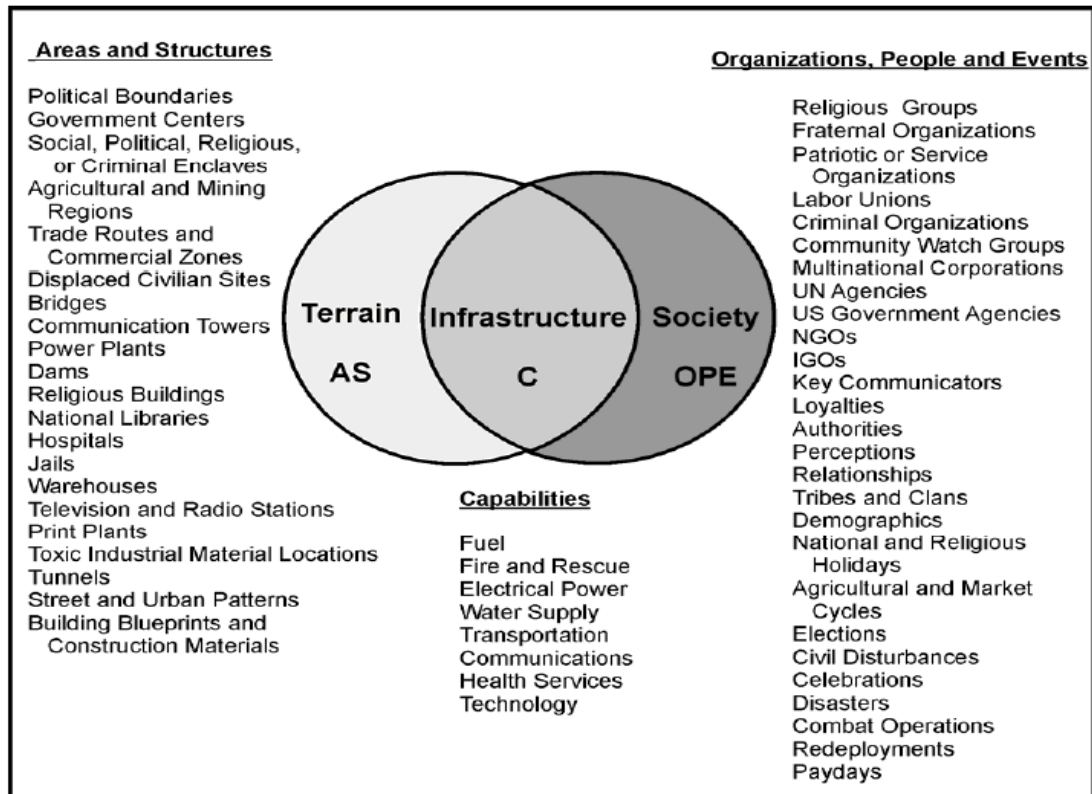


Figure 3 ASCOPE Example<sup>106</sup>

## Conclusion

Unfortunately, the official intelligence doctrine is outdated and lacking relevance.

Moreover, the Army intelligence analysts are missing out on an opportunity to truly modernize its

<sup>104</sup> FM 2-33.4 (Draft), 2-45 – 2-70.

<sup>105</sup> Ibid., 2-71 – 2-108.

training by not completing the update of its doctrine. FM 2-0 is a start, but the important manuals that can be used to learn and train by are still woefully inadequate for today's battlefield. Clearly, the good news is the draft publications forthcoming are much better and look to be effective in modernizing both methodologies and tools for intelligence analysis. Again, it is hard to rationalize the delay in publication as eight years appears to be significantly enough time to convert drafts into official publications. Indicated from this is a problem in the doctrinal process, but one this monograph will not further explore. Instead, the focus now shifts towards the training programs and schools the Army provides to produce and refine intelligence analysts.

### **Army Analysts Courses**

The Soldier's Manual and Trainer's Guide for the Intelligence Analyst serves as the training guide for enlisted soldiers from the ranks of private through master sergeant. Unfortunately, it has an entirety of 10 pages dedicated to the subject of analysis at all levels. Being generous, one could add another 20 pages by including the IPB sections.<sup>107</sup> That figure equates to less than ten percent of the training manual actually dedicated to the discussion of analysis. There are, of course, many other requirements to learn, but clearly, some time should be spent teaching analysis to an analyst.

### **Enlisted Courses**

Enlisted analyst training consists of Advanced Individual Training (AIT), Basic Non-commissioned officer course (BNCOC), Advanced Non-commissioned Officer Course (ANCOC)

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<sup>106</sup> FM 2-33.4 (Draft), 2-57.

<sup>107</sup> U.S. Army Intelligence Center and School, STP 34-96B 15-SM-TG, *Intelligence analyst MOS96B soldier's manual and trainer's guide: Skill level 1/2/3/4* (Fort Huachuca, AZ: Government Printing Office, 2003), i-v.

and any special courses attended by the individual analyst. Discussion of the time spent on analysis or critical thinking is informative as related to these courses.

The AIT course is approximately 652 hours worth of training according to the official Program of Instruction (POI). 52 hours of that is dedicated to analysis training. That equates to less than eight percent of the course.<sup>108</sup> More pointedly, much of the analysis blocks are focused on identifying PIRs vice any real analysis.<sup>109</sup> Perhaps even more startling is the description of the course for the intelligence analyst:

The student will learn basic skills in symbology, databases, map reading, All Source Analysis System Light (ASAS-L). Students learn detailed skills of command procedures for driving intelligence (CPDI) in various tactical environments. Students also learn situation evaluation using intelligence preparation of the battlefield, development of enemy courses of action, collection management, development of intelligence requirements, synchronization of intelligence collection to support decisions and production of intelligence to support decisions.<sup>110</sup>

Nowhere within this scope is the word analysis used except to describe learning the automation package identified as the All Source Analysis System Light on which 72 hours is dedicated to instruction. It is disturbing that methodologies beyond the familiar IPB are not mentioned nor are the even the principles of analysis discussed.

The next enlisted course is BNCOC. The POI for this course initially appears to offer more in the way of training analysis. This time the scope specifically denotes that the course will train and evaluate the soldier in conducting analysis at any echelon. In fact, it has 120.9 hours out of 257.1 hours trained dedicated to “analysis and mission training”.<sup>111</sup> Once again, however, a

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<sup>108</sup> U.S. Army Intelligence Center and School, *Program of Instruction for 96B Intelligence Analyst* (dtd. December 2005), 4-8 <https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008).

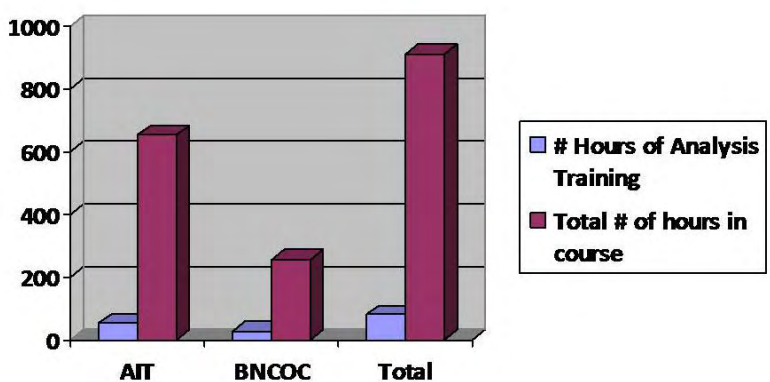
<sup>109</sup> *Ibid.*, 6-4.

<sup>110</sup> *Ibid.*, 2-1.

<sup>111</sup> U.S. Army Intelligence Center and School, *Intelligence Analyst BNCOC Program of Instruction*, (dtd. December 2002), 2-1 <https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008)

closer look demonstrates that the majority of that time is spent learning systems and the military decision making process and only 9.2 hours of an instruction block titled “Develop Enemy Situation” and 20 hours spent on pattern analysis relates to any real type of analysis. That equates to 11 percent of analysis course work.<sup>112</sup>

Finally, ANCOC is the final enlisted analyst course. At the time of completion of this monograph, there was no data on the ANCOC POI, however critical thinking is a part of their curriculum and is even given as a read ahead homework assignment.<sup>113</sup> The roll up of the known



enlisted course work for analysis training is uninspiring at best, represents nine percent of total course hours and can be seen in Figure 4.

**Figure 4 Enlisted Analysis Training**

### Warrant Officer Courses

Warrant officer analyst training consists of the original AIT, usually BNCOC and sometimes ANCOC depending on when the warrant officer chose to transition. Once through warrant officer candidate school, the warrant then attends the All Source Intelligence Technician Course (Basic Warrant Officer Course). The AIT and BNCOC figures have been discussed previously. The All Source Intelligence Technician Course POI offers the most promising course description. It professes to certify technicians to operate as analytical experts capable of baseline

<sup>112</sup> Intelligence Analyst BNCOC Program of Instruction, 4-11 – 4-14.

<sup>113</sup> U.S. Army Intelligence Center and School, “Welcome Packet, 96F ANCOC,” [https://icon.army.mil/icon\\_websites/SITES/NCOA/ncoa\\_index.cfm?page=ncoa\\_ancoc.htm](https://icon.army.mil/icon_websites/SITES/NCOA/ncoa_index.cfm?page=ncoa_ancoc.htm) (accessed April 15,2008).

proficiency in threat development, analytical/critical thinking, and predictive and distributive analysis.<sup>114</sup> The actual time spent training analysis is seven hours out of an available 216. That is

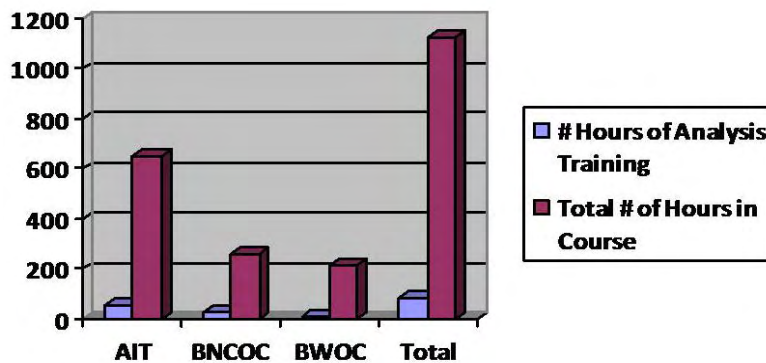


Figure 5 Warrant Officer Analysis Training

only slightly over three percent of the total course.<sup>115</sup>

The total figures for this training are seen in Figure 5.

This is even more startling than the enlisted course as

the warrant officer is touted

as “possess[ing] a high degree of specialization in a particular field in contrast to the more general assignment pattern of other commissioned officers. Warrant officers are competent and confident warriors, innovative integrators of emerging technologies, dynamic teachers, and developers of specialized teams of soldiers. Their extensive professional experience and technical knowledge qualifies warrant officers as invaluable role models and mentors for junior officers and NCOs.”<sup>116</sup> There are, of course, additional courses available, but this monograph focuses on the mandatory courses that the Army prescribes for all source analysts.

## Commissioned Officer Courses

Commissioned officer analyst training begins with the Military Intelligence Basic Officers Leaders Course (BOLC), advances to the Captains Career Course (CCC) and follows on to non-intelligence specific educational opportunities at the Command and General Staff College’s Intermediate Level Education (ILE).

<sup>114</sup> U.S. Army Intelligence Center and School, *All Source Intelligence Technician Program of Instruction* (dtd May 2003), 3-1 – 4-1 <https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008).

<sup>115</sup> *Ibid.*, 3-1 – 4-1.



The BOLC POI professes to train officers in intelligence analysis but spends only eight hours on the fundamentals of analysis. It does, however, dedicate 96 hours to IPB and 6 hours to Critical Thinking Skills Derived from Military History Methodologies. In addition, there is 16 hours dedicated to automation training and 12 to Iraq and Afghanistan specific lessons. The remainder is focused on leader tasks and other intelligence tasks.<sup>117</sup> That is 110 hours out of the 623 hours allocated or slightly better than 17 percent, a better figure than any of the enlisted, but still not stellar.

The Captains Career Course POI contains only 10 hours of analysis training out of a possible 695.8 hours of training, including two hours of predictive analysis and two hours of

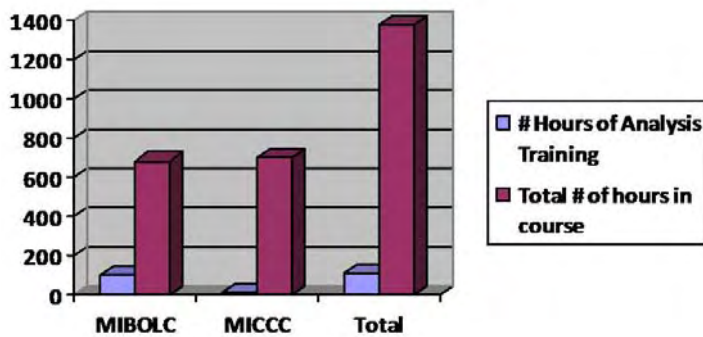


Figure 6 Commissioned Officer Analysis Training

critical thinking and brainstorming. That is less than two percent of the course.<sup>118</sup> While it does spend 256.6 hours on IPB instruction and exercises, these are the same techniques learned in the basic course and

applied in the field. Meanwhile 14.4 hours is spent on automation and technology. The roll up of officer training is found in figure 6.

<sup>116</sup> U.S. Army Training and Doctrine Command, FM 6-22, (Fort Monroe, VA: GPO, 2007), 3-2.

<sup>117</sup> U.S. Army Intelligence Center and School, *Military Intelligence Basic Officer Leader Course III Program of Instruction* (dtd. March 2005) <https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008).

<sup>118</sup> U.S. Army Intelligence Center and School, *Military Intelligence Captains Career Course Program of Instruction* (dtd. January 2006) <https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008).

## Conclusion

The total numbers dedicated to instructing analysis or critical thinking is depressingly low. The focus of analysis for the Army's analysts is absent. This should shock senior analysts within the Army. Without attending the courses and auditing them, it is perhaps critically unfair to judge them on hours as outlined in the POI. In fact, IPB is a form of analysis and does include several techniques for analysis. However, it is all focused on MDMP and is, in the end, a combined staff product.<sup>119</sup> This is great for the needs of the MDMP process, but leaves the analyst handicapped when they are required to produce any strategic analysis later in their careers. Strategic analysis often comes in the form of narratives and innovative, creative concepts that IPB and MDMP do not equip an analyst to do. It is fine to show a pattern through a pattern analysis tool, but the good analyst can also tell you why that pattern exists—something neither IPB nor MDMP exposure will teach. The fact that true time spent on analysis is such a small part of the courses is telling that the focus is not on analysis. That has to change if the Army wants to have good strategic analysts in its ranks.

## Mentorship

Many trace the origins of mentorship back to the *Odyssey*, Homer's epic poem. The hero of this Greek tale, Odysseus, often journeyed far and for years at a time, entrusting Mentor, (the goddess Athena, disguised as a male) with the care and education of his son, Telemachus. From this, the traditional mentorship emerged as a relationship between an older, wiser and/or more experienced person, coaching, inspiring, protecting, and, helping the younger to realize their aspirations and develop positive qualities.<sup>120</sup> The IC generally views a senior analyst as a subject

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<sup>119</sup> U.S. Army Training and Doctrine Command, FM 34-130, 1-4.

<sup>120</sup> Sharon L. Anderson and Maxine C. Mott, *Managing the Present, Raparing for the Future: An Online Mentorship Course for Adult Learners*, Surrey: Kwantlan University College, 2, [http://www.col.org/pcf3/Papers/PDFs/Andersen\\_Sharon.pdf](http://www.col.org/pcf3/Papers/PDFs/Andersen_Sharon.pdf) (accessed January 28, 2008).

matter expert responsible for the content of the analytical product, approving all finished intelligence products and serving as the chief trainer.<sup>121</sup> Unfortunately, there does not appear to be any U.S. Army literature defining this and the commonly held viewpoint is that the highest ranking analyst is the senior analyst. Further, the natural military hierarchy prevents positive mentoring relationships due to rank differences and many times competitive natures created by the U.S. Army promotion methods.<sup>122</sup> Regrettably, there is no formal mentorship program within the U.S. Army. The evaluation program, both officer and enlisted, has potential to assist, but has not drifted that direction over time. It still focuses on accomplishments of the individual more than any assistance or mentorship provided. Additionally, the elimination of the old skills qualification test (used initially as part of promotion criteria in the Army) has all but eliminated specific technical skills requirements for promotion comprehensively for all specialties.<sup>123</sup> On a positive note, mentorship often occurs within the Army by accident as, generally speaking, senior ranking analysts are in charge of junior analysts and their feedback often aids development in terms of methodologies and techniques. Still, a program that banks on accidental mentorship is not one to rely on.

## **Conclusion**

The doctrine, training courses, and mentorship trinity within the U.S. Army is severely shattered; not quite irrevocably, but it is precariously positioned. The doctrine is woefully outdated, the training courses focused on many things besides analysis fundamentals, and the

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<sup>121</sup> Garin, 62.

<sup>122</sup> MSG Jeffrey L. Walker, e-mail message to author, January 3, 2008. MSG Walker is a career U.S. Army all-source analyst having served in analyst positions in both tactical and operational level commands.

<sup>123</sup> *Ibid.*, interview with author. MSG Walker served on the 2007 board to evaluate the training courses. In a telephone conversation he revealed the promotion system does not require any proven MOS skill. He also elaborated on the lack of mentorship program that has existed in the Army from the time he joined to the present.

mentorship program is non-existent. The focus on automated systems has served as a detriment to growing skilled analysts. Nevertheless, there is new, solid doctrine emerging, though as yet still unpublished, and the courses appear to be adjusting to what is needed in the field. Still, the field may not yet recognize the necessary steps to provide them with future solid, usable analysis. The senior, most qualified analysts within the Army owe that solution back to the Army by transitioning their doctrine and instruction to produce what is needed. Finally, this same set of “senior analysts” must be the primer for creating an effective mentorship program that allows junior analysts an example to emulate and a sounding board for their educations.

## Recommendations

Noticeably, the Army has taken on an ever-widening set of missions that interact with much more than an adversary's military capability. The set of tasks required of commanders in stability and reconstruction operations involve all aspects of social construction necessitating the need for solid understanding of social interaction and function. Understanding these political, social, cultural, and economic underpinnings are paramount to success on today's battlefield. Consequently, the analysts at every echelon must be capable of not only understanding their area of operation, but also be a credible source of creative, innovative information to the commander.

The current Army Military Intelligence Analyst courses do little in the way of inculcating this foundation and even less in formal mentorship or the provision of work and training opportunities among civilian or government agencies to hone these skills. Analysts must be able to explore new ideas often differing from their organizational norms to truly form the realm of possibilities. Further exacerbating the problem is the lack of formal evaluation of analyst skills within the system. In the absence of the old skills qualification test, as part of the promotion system, an analyst is often promoted through the ranks with no true acquisition or refinement of analyst skills. Producing effective analysts capable of supporting military commanders at all echelons and as a potential pool of talent for future national level analysis, the Military Intelligence branch must provide the continuing education and performance metrics necessary to meet the contemporary operating environment.

Included in that is ensuring the correct language. The Army may indeed want a *synthesist* more than it wants an analyst for many functions. The stovepipes created within the intelligence discipline, in some respects, get it right. The signals intelligence analyst looks to ensure the priorities for signals intelligence, and the imagery analyst does the same for imagery intelligence. Currently, the all-source intelligence analyst seeks to break down all the provided intelligence into one coherent picture. It is not until recently, however, that we have asked the all-source

analyst to synthesize data and look at things holistically. The paradigm has to change and maybe that starts with an occupational name change—from analyst to *synthesist* or *fusionist*. Regardless of name, the key to effective analysis is in the proper education and mentorship of analysts throughout their career.

The Army Military Intelligence School must provide a foundation and continuing sequential education in humanities and social sciences (e.g. political, economic, history, language) to all levels of analysts, both enlisted and officer, stressing inductive and abductive, as well as deductive methods of analysis. This should be coupled with rigorous training in critical thinking ensuring our analysts continue to question their own logic as well as that of others. This can be accomplished within existing analyst courses throughout a soldier’s career whether enlisted or officer. Upon the establishment of an effective mentorship program, instruction can be formed so as to build on an analyst’s experience. It is easy to imagine that AIT and BOLC focuses on deductive analysis and critical thinking. Given an opportunity to cement these ideas in the workplace, the analyst would then return to school to gain new insights, methodologies and techniques in their next course. Each course must be challenging, adding a level of complexity of learning and reinforced by the mentorship process and the natural process of experience. Finally, the Army must not ever rely on automation to accomplish its analysis. While technology is great to store, sort, and compile data, it will never replace the human analyst. Too much focus is placed on technological solutions (e.g. All Source Analysis System) that have not provided the panacea they promised. US Special Forces put it best about the truth of automation, “Humans are more important than hardware. People—not equipment—make the critical difference. The right people highly trained and working as a team will accomplish the mission with the equipment available. Yet, the best equipment in the world cannot compensate for a lack of the right people.”<sup>124</sup> In

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<sup>124</sup> U.S. Army Intelligence Center and School, FM 2-33.4 [Draft], p.2-34.

short, the Army must invest in its analysts if it wants to reap the strategic benefits they can bring when properly educated and experienced.

The Army courses should be coupled with external organization options. The best way to ensure high-quality synthesis is to develop high quality synthesists by creating closer ties between the intelligence community and universities and providing opportunities for analysts to spend time in other departments and nongovernmental organizations.<sup>125</sup> A CIA analyst put it plainly, “University study, technical training, language proficiency, and several years on account are a necessity for developing the type of analytical expertise we need for our specialists.”<sup>126</sup> The U.S. Army should neither provide less nor expect less from Army intelligence analysts.

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<sup>125</sup> Richard N. Haas 2007. “Making Intelligence Smarter: The Future of U.S. Intelligence.” Report of an Independent Task Force for the Council on Foreign Relations. p.3.

<sup>126</sup> Marrin, Stephen. 2003. “Improving CIA Analysis by Overcoming Institutional Obstacles” Bringing Intelligence About: Practitioners Reflect on Best Practices. Joint Military Intelligence College. p. 51.

## Bibliography

### Military Publications

- Land, Eric A. *Training intelligence analysts [electronic resource] to meet the challenges of the contemporary operating environment*. U.S. Army Command and General Staff College, 2004.
- Lewis, George E., III. *Transforming army intelligence analysis [electronic resource] training and doctrine to serve the reasonable expectations and needs of echelons corps and below commanders, consumers, and customers*. Fort Leavenworth, KS: US Army Command and General Staff College, 2005.
- Rogers, Stephen C. *Improving information operations with a military cultural analyst*. Fort Leavenworth, KS: US Army Command and General Staff College, 2005.
- U.S. Army Intelligence Center and School, *All Source Intelligence Technician Program of Instruction* (dtd May 2003), 3-1 – 4-1  
<https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008).
- . FM 2-32.4 [Draft], *Intelligence Analysis*, Fort Huachuca, AZ: Government Printing Office, 2006.
- . FM 34-130 (Draft), *Intelligence Preparation of the Battlefield*. Fort Huachuca, AZ: Government Printing Office, 2000.
- . *Intelligence Analyst BNCOC Program of Instruction* (dtd. December 2002)  
<https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008)
- . *Military Intelligence Captains Career Course Program of Instruction* (dtd. January 2006)  
<https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008).
- . *Military Intelligence Basic Officer Leader Course III Program of Instruction* (dtd. March 2005) <https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008).
- . *Program of Instruction for 96B Intelligence Analyst* (dtd. December 2005)  
<https://icon.army.mil/cfportal/index.cfm?sector=intranet&page=intranet> (accessed April 15,2008).
- . *STP34-96B14-SM-TG 1994: Intelligence analyst MOS96B soldier's manual and trainer's guide: Skill level 1/2/3/4*. Fort Huachuca, AZ: Government Printing Office, 1994.
- . “Welcome Packet, 96F ANCOC.”  
[https://icon.army.mil/icon\\_websites/SITES/NCOA/ncoa\\_index.cfm?page=ncoa\\_ancoc.htm](https://icon.army.mil/icon_websites/SITES/NCOA/ncoa_index.cfm?page=ncoa_ancoc.htm) (accessed April 15,2008).
- U.S. Army Training and Doctrine Command. FM 2-0, *Intelligence*. Fort Monroe, VA: Government Printing Office, 2004.
- . FM 6-22, *Army Leadership: Competent, Confident, and Agile*. Fort Monroe, VA: Government Printing Office, 2006.



- . FM 34-3, *Intelligence Analysis*. Fort Monroe, VA: Government Printing Office, 1990.
- . FM 34-130, *Intelligence Preparation of the Battlefield*. Fort Monroe, VA: Government Printing Office, 1994.

## Books and Articles

- Anderson, Sharon L. and Maxine C. Mott, *Managing the Present, Raparing for the Future: An Online Mentorship Course for Adult Learners*, Surrey: Kwantlan University College [http://www.col.org/pcf3/Papers/PDFs/Andersen\\_Sharon.pdf](http://www.col.org/pcf3/Papers/PDFs/Andersen_Sharon.pdf) (accessed January 28, 2008).
- Thomas P. M. Barnett, *The Pentagon's New Map: War and Peace in the 21<sup>st</sup> Century* (City:Publisher, 2002), 121-144.
- Betts, Richard K. "Fixing intelligence." *Foreign Affairs* 81, no. 1 (January/February 2002): 43-59.
- Brooks, David., "The Elephantiasis of Reason". *The Atlantic Monthly*. (January/February, 2003).
- Boyd, Dennis & Bee, Helen. 2006. *Lifespan Development*. Fourth Edition. Allyn and Bacon Publications. pp. 238-240.
- Chapman, Graham. 2007. Evolutionary psychology, complexity theory, and quantitative social epistemology". ScienceDirect. *Futures* 39. Pp. 1067-1083.
- Clauser, Jerome K. and Sandra M. Weir, "Intelligence Research Methodologies, An Introduction to Techniques and Procedures for Conducting Research in Defense Intelligence," State College, PA: HRB Singer, 1976.
- Cooper, Jeffrey R. *Curing Analytic Pathologies: Pathways to improved Intelligence Analysis*. Pittsburg: GPO, December 2005.
- Davis, Forrest L. "Predictive intelligence: Do we really need it?" *Military Intelligence Professional Bulletin* 23, no. 2(April/June 1997): 30-33.
- Devlin, Keith. "The Role of Conceptual Structure in Human Evolution." in *Conceptual Structures: Logical, Linguistic, and Computational Issues, 8th International Conference on Conceptual Structures, ICCS 2000, Darmstadt, Germany, August 14-18, 2000, Proceedings*, edited by Bernhard Ganter and Guy W. Mineau. Berlin: Springer, 2000.
- Folker, Robert. "Intelligence Analysis in Theater Joint Intelligence Centers: An Experiment in Applying Structured Methods." *Occasional Paper Number Fourteen*. Washington, D.C.: Joint Military Intelligence College, 2000.
- Friedman, Thomas L., *The World is Flat: A Brief History of the Twenty-First Century*. New York: Farrar, Staus and Giroux, 2005.
- Gale, Stephen. "Standards of Intelligence Reasoning." *Foreign Policy Research Institute E-Notes* (November, 2003). <http://www.fpri.org/enotes/20031114.americawar.gale.intelligencereasoning.html> (accessed September 26, 2007).
- Garin, Thomas A. 2003. "Appraising Best Practices in Defense Intelligence Analysis" in *Bringing Intelligence About: Practitioners Reflect on Best Practices*, edited by Russell G. Swenson. Washington, DC: U.S. Government Printing Office, 2003.
- Garst, Ronald D. and Max L. Gross. "On Becoming an Intelligence Analyst." *Defense Intelligence Journal* 6, no. 2 (Fall 1997).

- Hansen, James H. "Learning From the Past: Soviet Deception in the Cuban Missile Crisis." *Journal of the American Intelligence Professional* Vol. 46, No. 1, (2002) <http://www.cia.gov/csi/studies/vol46no1/article06.html> (accessed January 12, 2008).
- Haass, Richard N. project director. "Making Intelligence Smarter: The Future of U.S. Intelligence." Report of an Independent Task Force sponsored by the Council on Foreign Relations. New York: Council on Foreign Relations Press, 1996. [www.fas.org/irp/cfr.html](http://www.fas.org/irp/cfr.html) (accessed November 9, 2007).
- Heuer, Richard J. Jr. "Cognitive Factors in Deception and Counterdeception," in *Strategic Military Deception*, eds. Donald C. Daniel and Katherine L Herbig. Elmsford, NY: Permagon Press, 1981.
- . *Psychology of intelligence analysis*. Center for the Study of Intelligence. New York: Novinka Books, 2006.
- Hobsbawm, Eric J. *The Age of Extremes: A History of the World, 1914-1991*. Pantheon Books, 1994.
- Hollis, Martin and Steve Smith, *Explaining and Understanding International Relations*. New York: Touchstone, 1990.
- Huntington, Samuel P. *The Clash of Civilizations and the Remaking of World Order*. New York: Simon & Schuster, 2003.
- Jin, Wulun, "Understanding complexity, challenging traditional ways of thinking." *Systems Research and Behavioral Science*. July-August 2007: p. 401.
- Johnston, Rob. *Analytic Culture in the U.S. Intelligence Community: An Ethnographic Study*. Washington, D.C.: Government Printing Office, 2005.
- . "Integrating Methodologies into Teams of Substantive Experts: Reducing Analytic Error." *Studies in Intelligence* 47, No.1 (April, 2003).
- Lidman, Russell, Paul Sommers. 2005. The "compleat" policy analyst: A top 10 list. *Public Administration Review; Washington* 65, no. 5(2005): 628.
- Marrin, Stephen D. 2004. "CIA's Kent School: Improving Training for New Analysts." *International Journal of Intelligence and Counter Intelligence* 16. No. 4. pp.609-637.
- . "Improving CIA Analysis by Overcoming Institutional Obstacles," in *Bringing Intelligence About: Practitioners Reflect on Best Practices*, ed. Russell G. Swenson. Washington, DC: U.S. Government Printing Office, 2003.
- McDowell, Don. *Strategic Intelligence: A Handbook for Practitioners, Managers, and Users*. Cooma, Australia: Istana Enterprises Pty. Ltd., 1998.
- Merom, Gil. "The 1962 Cuban Intelligence Estimate: A methodological Perspective." *Intelligence and National Security* 14, No. 3. (Autumn, 1999).
- Moore, David T. "Critical Thinking and Intelligence Analysis." *Occasional Paper Number Fourteen*. Washington, D.C.: Joint Military Intelligence College, 2006.
- Moore, David T. and Lisa Krizan. "Core Competencies for Intelligence Analysts at the National Security Agency," in *Bringing Intelligence About: Practitioners Reflect on Best Practices*, edited by Russell G. Swenson. Washington, DC: U.S. Government Printing Office, 2003.

- Mosler, David. 2000. *Global America: Imposing Liberalism on a Recalcitrant World*, Greenwood Publishing Group. P. 3.
- Nonneman, Gerd. *Analyzing Middle East Foreign Policies and the Relationship with Europe*. New York: Routledge Publishing, 2005.
- Odom, William E. *Fixing intelligence: For a more secure America*. New Haven: Yale University Press, 2003.
- Schafersman, Steven D. "An Introduction to Critical Thinking."  
<http://www.freeinquiry.com/critical-thinking.html> (accessed 21 December 2007).
- Strassler, Robert B., ed. *The Landmark Thucydides: A Comprehensive Guide to the Peloponnesian War*, New York: Touchstone, 1996.
- Swenson, Russell G., Mark M. Lowenthal, and Joint Military Intelligence College. 2003. *Bringing intelligence about : Practitioners reflect on best practices*. Washington, D.C.: Joint Military Intelligence College.
- Turabian, Kate L. 2007; 2007. *A manual for writers of research papers, theses, and dissertations: Chicago style for students and researchers*. Chicago: University of Chicago Press.
- Wohlstetter, Roberta. "Cuba and Pearl Harbor: Hindisght and Foresight." *Foreign Affairs* 46, No. 3. (July 1965).
- Yu, Chong Ho. "Abduction? Deduction? Induction? Is there a Logic of Exploratory Data Analysis?" Presented at the Annual Meeting of the American Educational Research Association, New Orleans, LA, April 4-8, 1994.