



# Critical Thinking

## A Missing Ingredient in DoD's Acquisition (Education) System

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... [T]he procurement process itself is a weapon of war no less significant than the guns, the airplanes, and the rockets turned out by the arsenals of democracy.

—I. B. Holley

In his review of the industrial buildup for World War II, renowned historian I. B. Holley eloquently highlighted the importance of acquisition to our country's overall defense posture. The role of advanced technology and weapon systems to successful World War II outcomes is widely recognized. From a fiscal perspective, acquisition professionals historically spend over half of Department of Defense (DoD) annual expenditures. In FY2013, that dollar amount topped \$400 billion.

The organization with the formidable task of training and educating this workforce is the Defense Acquisition University (DAU). Headquartered near Washington, D.C., DAU has 500 instructors in five regional campuses across the country. These instructors train all of DoD's 152,110 program managers (PMs), financial managers, contracting officers, engineers and logisticians. Each year, DAU receives many accolades for the excellent job it does in educating the acquisition workforce. In 2013, KnowledgeAdvisors recognized DAU as the top overall corporate university.

Yet it is the graduates of this award-winning university who are responsible for and lead the multitude of failed acquisition programs. Certainly, one cannot hold DAU accountable for failed acquisition programs, but this apparent dichotomy points to

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an important question: Are the Department's personnel adequately prepared to lead the highly complex programs of today and tomorrow?

The complex and unstable environment surrounding federal procurement makes it particularly difficult to train and educate DoD acquisition leaders. Complexity comes in part from technological uncertainties found in weapon system programs

worth doing in the first place. ...What we don't have are leaders. ...What we don't have, in other words, are thinkers.

According to Deresiewicz, the answer to overcoming this crisis is to develop leaders with the ability to *think critically*. Not the ability to memorize information, follow checklists or recall specific details at the right time, but the ability to develop their own ideas about a particular subject. He claims that spending

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as well as the bureaucratic organizational structure. Instability in funding, requirements, personnel and procurement philosophy is exacerbated by the increasingly long time it takes to procure high-tech weapon systems. To be successful, acquisition leaders must not only be technically savvy and capable of understanding the tradeoffs between scope, requirements, schedule, time and costs but must be business and politically savvy enough to coordinate, collaborate with and influence a wide variety of stakeholders such as Congress, the Office of the Secretary of Defense, and Service and industry leaders.

Acquisition leaders must constantly adapt, motivate and lead their high-performing teams through inevitable change over the long haul. There is no checklist for success. One NASA study on government program management concluded that success depends on multiple external stakeholders, groundbreaking technology and innovation, unprecedented engineering concepts and the management of multiple systems of systems. Leadership and critical thinking skills are crucial in such an environment.

In a recent speech to West Point cadets, Yale University Professor William Deresiewicz argued that these exact skills—leadership and critical thinking—are missing in today's education system:

We have a crisis of leadership in America because our overwhelming power and wealth, earned under earlier generations of leaders, made us complacent, and for too long we have been training leaders who only know how to keep the routine going. Who can answer questions, but don't know how to ask them. Who can fulfill goals, but don't know how to set them. Who think about how to get things done, but not whether they're

enough time concentrating on a subject to develop one's own ideas about it is fundamental to becoming a thinker. Reading, discussing, writing, making connections across seemingly disparate concepts, mulling things over and refining one's thoughts all contribute to developing this skill.

Frank Kendall, Under Secretary of Defense for Acquisition, Technology, and Logistics, has come to similar conclusions. His No. 1 principle underlying his newest acquisition initiatives relates to critical thinking. According to his April 24, 2013, memorandum to the Department:

The first responsibility of the acquisition workforce is to think. We need to be true professionals who apply our education, training, and experience through analysis and creative, informed thought to address our daily decisions. Our workforce should be encouraged by leaders to think and not to automatically default to a perceived "school solution" just because it is expected to be approved more easily. BBP [Better Buying Power] 2.0, like BBP 1.0 is not rigid dogma—it is guidance subject to professional judgment.

Unfortunately, the DoD acquisition education system is not designed to develop critical thinkers; it is designed to develop process experts: people who understand and can apply the Federal Acquisition Regulations (FAR); who understand the DoD 5000 series regulations, policies and processes; who understand the various stakeholders and their particular roles in the process. The acquisition education system instructs acquisition officials on how to build and present briefings, how to speak with the media, how to build budgets and track expenditures and on myriad other steps necessary to develop, acquire and sustain America's weapon systems. These are all necessary skills, but they are not sufficient.

At the beginning of an acquisition career, trainees face a battery of online courses designed to teach the DoD acquisition process. Students read various policies and regulations and demonstrate their knowledge through acquisition examples and multiple-choice tests. It is an exercise of reading, memorizing, understanding steps in a process, as well as multiple-choice test-taking skills. There is little to no instructor interaction, no feedback or assessment of the quality of thinking the student is exercising, and no opportunity to ask questions, debate or learn the reasons “why” a particular answer might be better than another. In short, critical thinking skills are neither taught nor required in these courses.

In 2002, Lisa Tsui—a researcher for the Education Policy Center at the Urban Institute in Washington, D.C.—published research in the *Journal of Higher Education* concluding that students experienced greatest growth in critical thinking through writing and rewriting with a focus on synthesis, analysis and refinement of ideas. High-quality online courses at major universities employ online course software designed to engage students in debate. Instructors pose a question and students answer the question via short essays. Writing an essay forces students to think hard about their answers and often requires that they do research to support their opinions. The instructor then facilitates a debate around the students’ answers by asking each student to provide a response to several students’ answers. This approach challenges students to dig deep into topics and extend their learning well past rote memorization.

DAU acquisition training does not include this method. As the acquisition leader gains experience, classroom courses are added to complement the online courses. The resident courses increase depth of knowledge by putting students through a variety of team exercises, allowing students to interact and learn from their colleagues’ experiences. They provide students with opportunities to enhance their briefing and oral communication skills, examine past successes and failures via case studies, as well as interact with senior defense and industry leaders. While the classroom courses are a significant improvement to the online courses in terms of student interaction and participation, they fall short in providing an environment that encourages students to think and deeply understand the fundamentals of their profession.

Vern Edwards—author, lecturer and government contracting specialist—recently penned a thought piece related to acquisition professionals in which he argues that effective thinking must begin with contemplation and understanding simple things deeply. He asks his readers the following:

If asked to explain cost, as used in cost estimate, cost analysis, and should cost, what would you say? If asked to define cost on the spot, could you do it? A cost estimate is an estimate of what, exactly? How much and how good of an explanation could you give to someone who doesn’t know anything about it? How deeply could you go into that concept? Could you anticipate the inevitable questions? Could you answer them? ... How much do

you know about, and how deeply do you understand, the thing in which you specialize?

One of the authors of this article works with more than 100 senior program managers annually and finds that critical thinking is a rarity. One recent exception was a Navy PM in charge of developing missiles launched from fighters. This PM constantly probed his staff by asking questions such as: Why are we doing this? What other options have you explored? How do we know this is a fair cost? Who did you involve in your decision making? What is our industry partner’s stance on this issue? How did your solution resolve their concerns? Through this thinking process and probing, his team found an Air Force missile that met all Navy requirements but cost \$400,000 less per missile than his Navy missile. One would think it would be an easy solution to simply acquire the Air Force missiles, saving the government, overall, more than \$550 million. However, “old thinking” persisted as senior leadership resisted moving funds from the Navy to the Air Force. It took more than 18 months of marketing, educating and prodding to bring this new idea to fruition.

The authors find the failure to apply critical thinking to DoD procurement repeated day after day at all levels. And while it is easy to point a finger at DAU for failure to teach critical thinking, doing so is shortsighted. The individual shares in that responsibility, as do leaders across the Department who should be mentoring their subordinates in critical thinking. It’s difficult, however, to mentor people to think critically if the leaders themselves have failed to learn to think critically. This failure of senior leaders to think critically was epitomized when Robert Gates, while Secretary of Defense, encouraged each Service to think harder and challenge present practices and beliefs to see whether they align with future Service needs and capabilities. His challenges to “think” were met with strong resistance and his motives were often questioned, so much so that he felt obligated to state the following at the Air Force Academy on March 4, 2011:

My message to the services is being distorted by some and misunderstood by others. At the Navy League last year, I suggested that the Navy should *think* anew about the role of aircraft carriers and the size of amphibious modernization programs. The speech was characterized by some as my doubting the value of carriers and amphibious assault capabilities altogether. At West Point last week I questioned the wisdom of sending large land armies into major conflicts in Asia, Africa and the Middle East, and suggested the Army should *think* about the number and role of heavy armored formations for the future. That has been interpreted as my questioning the need for the Army at all, or at least one its present size, the value of heavy armor generally, and even the wisdom of our involvement in Afghanistan. I suspect my remarks today will be construed as an attack on bombers and fighters. [Emphasis added.]

The frustration experienced by Gates suggests that Kendall’s goal of improving the thinking of acquisition professionals will

require much more than direction from above—it will require deep introspection by acquisition leaders on how their beliefs and actions have caused today’s challenges. At a minimum, the Department will need to make significant changes to its education process and how leadership engages and mentors acquisition professionals. Perhaps the following recommendations for DAU will spur some thinking in the Department about how it might go about creating critical thinkers.

### Recommendations

**Recommendation 1:** Understand that embedding good thinking habits cannot be surged at the senior-officer level. Revamp all entry- through senior-level training courses to engage students in critical thinking about the subjects being taught.

these members are considered professionally qualified to instruct DoD acquisition courses. When entering DAU, these instructors complete a training program. The training program should be modified to include instruction on approaches to developing critical thinking skills.

Additionally, DAU should consider adjusting the mix of faculty to include academically qualified (AQ) instructors from major universities. They could be rotating positions where each faculty member spends two to four years at DAU. During their tenure, these AQ faculty members could advance their research in areas related to DoD procurement, research that may be difficult to accomplish in a civilian university. The DoD would benefit from an increased variety of instruction as

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A systems approach should be taken, introducing critical thinking fundamentals such as standardized tools and language into entry-level courses and then building on that foundation as students advance. Faculty would make it explicit when they apply the terms and tools. As students advance, they would be expected to apply the intellectual standards and elements of reasoning and thought. At the most senior levels, the students would not only be expected to have embedded good thinking habits and superior content knowledge but be working on their ability to mentor their teams on sound critical, creative and analytical thinking techniques. Many of these changes counter DAU’s cost-per-training-hour and seats-per-offering approach that has brought many accolades. As Deresiewicz suggested, the ability to think critically requires spending enough time concentrating on a subject to develop one’s own ideas. It requires reading, writing, discussing and making connections across seemingly disparate concepts. It requires giving students time to stop and reflect. Metrics for success will have to measure not only the quantity of graduates but the quality.

**Recommendation 2:** Adjust DAU’s instructor recruiting, training and certification process to include professionally qualified as well as academically qualified instructors and ensure all instructors are qualified to advance improved thinking skills.

The majority of faculty members arrive at DAU as retired practitioners from the civilian and active-duty DoD acquisition career field. Because of their many years of experience,

well as the advancement of ideas specifically focused on DoD procurement. Finally, the mix of faculty would continually bring fresh thinking into DAU.

**Recommendation 3:** The Department should consider developing a specialized program patterned after the Services’ highly successful advanced strategy schools but with a bent toward weapon system procurement and the development of business-oriented strategists and critical thinkers.

The Services answer the need for developing the next generation of warfare strategists by creating specially designed advanced academic programs. The School of Advanced Military Studies (SAMS, Army), School of Advanced Air and Space Studies (SAASS, AF), Joint Advanced Warfighting School (JAWS, Marine) and the Advanced School of Air Mobility (ASAM) are examples of such programs. These schools are highly competitive, and only a select few Service members have the opportunity to attend. The graduates of the advanced schools are in extraordinarily high demand, experience 5 times the average success in promotion to flag rank and are considered the top strategic thinkers in the country.

An advanced acquisition school akin to this successful approach could create a cadre of highly skilled acquisition professionals ready to tackle the procurement of the most difficult acquisition programs. Each year, 12 to 20 carefully selected students from across the DoD would enter the yearlong school

taught by a cadre of hand-picked specialized faculty members with doctoral degrees or postdoctoral qualifications. As with the other advanced academic programs, the focus of the school would be on critical thinking, but business would be used as the medium to teach advanced thinking skills. Examples of courses to be taught might include business fundamentals, critical thinking and decision making, business strategy and theory, business and government relations, business operation simulation. Students would be required to complete a thesis and comprehensive oral exam. Eventually, this program would be certified to award a master's degree in business strategy.

In addition to creating a cadre of critical thinkers prepared to attack the most challenging weapon system procurement programs, the DoD would benefit from the thought and research resulting from students' theses.

**Recommendation 4:** Add more business education courses to the curriculum.

In general, DoD acquisition professionals are at a severe disadvantage each day as they find themselves on the opposite side of the table from business leaders who fully grasp business fundamentals. DoD acquisition education is heavy on DoD procurement processes, but very little is taught on business fundamentals. This is particularly troublesome, as DoD acquisition leaders are not required to have any formal business education. An understanding of business principles would provide government acquisition leaders with a better opportunity to structure business deals that create value for the Department and for industry. By combining instruction in the DoD procurement process (currently the

entire curriculum) and business fundamentals in a manner that encourages critical thinking, DAU will significantly improve the skill set of the acquisition corps.

**Recommendation 5:** Improving the quality of thinking of the acquisition corps should begin at the leadership level.

While DAU can lead the educational elements of developing improved thinkers, senior leaders such as Service acquisition executives, program executive officers, program directors and other acquisition leaders down the line must follow Kendall's lead in driving this cultural change. One reason change efforts fail is that 68 percent of the people involved in the change effort don't believe they need to change to fit within the new paradigm. We feel DoD's senior acquisition leadership corps must first understand that it needs to change and then put in the work to do so. The leaders' interaction with the acquisition corps, the questions they ask, the work they drive, and the emphasis they place will ultimately determine whether the leadership corps applies critical thinking to its daily actions or continues to be process focused. Certainly cost, schedule and performance will continue to be stressed and evaluated. However, critical thinking questions such as why a particular strategy is selected, what behavior is expected, how a particular analysis tool is utilized and why the conclusions make sense will cause acquisition professionals to pause and consider the fundamentals of what they are considering. &

*The views presented in this article are those of the authors and do not necessarily represent the views of the Department of Defense or its Components.*

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