

Intentional Learners at USAFA: An “Opinion Piece”

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We, the faculty of the Air Force Academy must educate leaders for tomorrow’s Air and Space Force. This article reflects some musings based on my time in the Air Force and my time here on the Computer Science faculty. Notably, most of these thoughts were precipitated by my involvement with the three-part symposium on *Greater Expectations: A New Vision for Learning as a Nation Goes to College*,” hosted by DFE in Spring 2003. The discussions prompted me to think more deeply about creating “Intentional Learners.” We talked about producing lieutenants as “literate citizens” via a liberal education. Such individuals communicate well, are well versed in the society they defend, correctly make ethical decisions, and apply their education to the employment of air and space power.

Within the seven existing educational outcomes, I recommend that we use the following methods to achieve such officers: (1) concentrate initially on having cadets learn the “basics,” (2) encourage students to take ownership of their learning, (3) develop across-the-curriculum initiatives, (4) ensure that instructors present intra- and inter-disciplinary integration of knowledge, along with their courses’ military relevance; (5) help cadets develop into officers who are team players.

(1) In the learning process, cadets must start with foundational knowledge. Basic knowledge then leads to knowledge integration, which leads to integration with others or the ability to be a team player. To illustrate, consider the following analogy. To ensure their survival and development, we expect children to learn certain fundamental things, such as language, social behaviors, names, and places. We often use a developmental approach. For example, to write creatively in the tenth grade, a child must begin in kindergarten with the alphabet, practice spelling in the first grade, work on handwriting in the third grade, and develop basic sentence structure and grammar in the fifth grade. Therefore, it is *fair* and *necessary* to create an environment that ensures a person learns basic knowledge about their chosen discipline, enabling success. As faculty, we are—we hope!—preparing our cadets to become professionals within their field, including learning their disciplines’ terms, components, processes, and ethics. However, simply mastering the “basics” is not sufficient.

(2) Just learning and regurgitating facts—what a former dean labeled “academic bulimia”—will not produce well-rounded officers. We must encourage students to take ownership of the learning process. Both

faculty and cadets must realize that homework, papers, tests, and other learning vehicles are designed to facilitate students’ mastery of material. While some learning vehicles, such as GRs, serve a role akin to playing the cross-city rival, others, such as programming assignments, serve the role of scrimmaging the junior varsity in preparation for this contest. This preparation and practice is critical. Thus, coming to class prepared and eager to participate should be a rewarding, yet challenging, experience.

(3) These responsible cadets—called “Intentional Learners” in the *Greater Expectations* report—must now integrate their knowledge by acquiring needed skills/competencies as they complete the “core.” This often means across-the-curriculum initiatives that focus on competencies. Based on my time here and in the Air Force, I propose Ethics, Writing, Information Technology, and Warfare as the “learning lynchpins.” I believe these skills can be readily achieved in each discipline. In computer science, for example, cadets might wrestle with ethical issues in protecting privacy on the World-Wide Web, write a user’s manual for a software product, choose between competing information system upgrades, and operate a satellite uplink at the Air Operations Center.

(4) Related to across-the-curriculum initiatives is the need for an intra-and inter-disciplinary integration of knowledge that emphasizes military relevance. Toward a senior year capstone, we should incorporate explicit demonstrations of these critical relationships. Additionally, we should include various learning techniques across disciplines. We should, for example, expect a social science course to include statistical analysis, and we should expect an engineer to write an articulate paper.

Well-educated cadets will know their chosen discipline’s core knowledge, its processes, its history, and its potential. This breadth is especially important for officers who must, throughout their careers, integrate the multifaceted people and missions under their command. For instance, in computer science, our digital circuits operate because of the physics and chemistry involved. Cadets must learn to make connections. For example, the autonomous nervous system provides a user interface (nerves), hides details (capillaries) and manages resources (oxygen), much as a modern operating system functions (mouse, memory storage locations and processing time, respectively). This ability to integrate

and associate knowledge is essential when cadets must also succeed at teamwork.

(5) We must help cadets develop into officers who are team players. To illustrate being a team player—or integration with others—let’s look at how a builder might construct a new high-rise with three key resources: supplies (raw materials), processes (how to put them together properly) and time (to complete the process). Similarly, for cadets to develop into efficient leaders, they must have basic knowledge (raw materials), know how to integrate that knowledge (how to put the knowledge together), and the time to succeed. We couldn’t hope to build the 5th floor of a building if the 2nd and 3rd floors weren’t present. If cadets are to successfully integrate and develop further knowledge, they must have the basic structure leading up to it. Thus, the homework assignments, readings, memorization, labs and tests are necessary to successfully complete the learning process.

The process of learning to be a team player is also complemented by balancing competition and collaboration. To increase cadets’ ability to be team players, we must develop team assignments that introduce elements of conflict and compromise. They must also be structured to prevent cadets from simply gluing together independent work.

In conclusion, to mold “literate citizens” within the educational arena as our cadets become officers, we should ensure that cadets are suitably challenged at all stages of the learning process. They must acquire basic

knowledge by assuming ownership for their own learning. Further, they must integrate this knowledge through across-the-curriculum initiatives focused on overarching topics such as Ethics, Writing, Information Technology, and Warfare. This integration, particularly as it relates to military relevance, can be further strengthened through intra/inter-disciplinary knowledge. Finally, with an emphasis on teamwork, cadets can integrate their knowledge with others. These literate citizens must be able to communicate clearly and must be well versed in the society they defend. Furthermore, they must be able to correctly make ethical decisions and apply their education to air and space power.