

ESSAY

Creative Chances and the Burden of Freedom

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Midway through my third year as Superintendent of the United States Air Force Academy, I feel very fortunate to be in this post at this time – a time when America and societies worldwide are facing many varied challenges, all flying at us at a rapid pace. At the global scale we see the paradoxes – attacks in Paris and San Bernardino in the name of ISIS juxtaposed with over 190 nations brought together, also in Paris, to develop a global solution to climate change. On the national scale our leaders are attempting to balance order and the security of our citizens with the freedoms so fundamental to our Constitution. And even within higher education we see contradictions between educational efforts to prepare our students for lives of meaning and purpose – a goal that often requires provocation – and contrasting, competing calls to provide safe spaces for our students to grow and learn.¹

Each of these lines of thought reminds me of an August 2015 opinion in the New York Times, penned by Roger Cohen, in which he attributes to some ISIS sympathizers a desire to “be released from the *burden of freedom*.”² This is an extreme case of what we are perhaps seeing on the national scale, and even within our students – a desire for the freedom to make their own decisions, only to become overwhelmed by the need to make so many decisions. Therein lies some of the appeal of operating within our own comfort zones – operating around people basically like us, studying subjects that we’re comfortable with to prepare for jobs that we think we’ve always wanted.

As articulated by Richard Riley, Secretary of Education under President Clinton, “We are currently preparing students for jobs that don’t yet exist using technologies that haven’t been invented in order to solve problems that we don’t even know are problems yet.”³ That is...to do our jobs properly and prepare the next generation, we must challenge ourselves and our students to expand their horizons well beyond their comfort zones and learn to operate where difficult ideas intersect.

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A popular entrepreneur magazine, *Fast Company*, echoes this mentality--this need to operate outside our comfort zones--by suggesting the knowledge economy is becoming a creative economy and touting individuals who break molds with spectacular results.⁴ Even the new Air Force Strategy published in 2014 makes it very clear that positioning the Air Force for success in the coming decades will require adoption and mastery of two strategic imperatives: mental agility and inclusiveness.⁵ These imperatives seem to call for a critical mass of “unicorn” officers capable of excelling outside their comfort zones. In any group of successful leaders, it’s likely some will have been unicorns in their own ways, pushing the boundaries of multiple disciplines. In my own experience, I was repeatedly kept out of my comfort zone when I had to blend ops research, political science, economics, leading people, and piloting aircraft around the world--among other things.

Yet despite many mandates and successful examples, the problem still remains: how does any university prepare good, but “non-unicorn” students for their futures?⁶ It’s something we’re grappling with at the Air Force Academy. How do we design a curriculum that has the elements necessary to prepare graduates to succeed in this complex, networked environment – does our curriculum challenge them and push them outside their comfort zones? Does it force them to practice at the intersection of disciplines, to demonstrate the courage needed to gracefully bear the “burden of freedom?”

Reviewing and updating a curriculum isn’t the easiest endeavor, even at a military service academy – or perhaps *especially* at a military service academy. Take the time-forged bureaucracy of government service and combine it with the meticulous methodology of faculty – and the outcome is likely to be what a fellow college president termed an “organized anarchy.”⁷ Anyone currently in a faculty or administrative role should instantly connect with that idea.

In this prescribed, structured, demanding environment, no division or discipline can imagine an “Academy

Graduate” getting a complete education without exposure to their specific content. This perspective, combined with national calls for more Science, Technology, Engineering, and Math – STEM – emphasis, has caused me, our Dean of Faculty and other Air Force senior leaders to question whether we have the right balance: are we pushing the STEM-oriented students enough to benefit from liberal education, and pushing the humanities-oriented students sufficiently to benefit from understanding the STEM basics?

This is where we might look to C.P. Snow to help define an answer to the question, and in particular to his famous Rede lecture given in 1959 at Cambridge University, in which he gave voice to his concern over the two cultures and the scientific revolution. He observed that the scientists and the “intellectuals” – a term used at the time, for what today would likely be called humanities or social science scholars – were at cultural poles. Their attitudes, standards, patterns of behavior, assumptions and approaches were at odds.⁸ He asserted that the feelings of one pole became the “anti-feelings” of the other pole with a net practical, intellectual and creative loss. And yet in the face of that negative dynamic, he persuasively argued that the *nexus* of

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the humanities, the basic sciences, and the applied sciences and engineering is where we best produce “*creative chances*.”

This space of creative chances is where we would like students to practice what Snow termed the “astonishing intellectual courage” needed to integrate disciplines, to recognize the “moral un-neutrality of science,” and in today’s vernacular, to become a reader of something that Nancy Scola of POLITICO labelled as *Liberal Arts Majors are from Mars, and Geeks are from Venus*.⁹

Unfortunately, this integration doesn’t happen often enough. Steve Jobs famously remarked “it is in Apple’s DNA that technology alone is not enough. It’s technology

married with liberal arts, married with the humanities, that yields us the result that makes our heart sing.”¹⁰ Those who can’t go more than a few minutes without checking their mobile phones illustrate what he meant. Similarly, Fareed Zakaria (in his book, *In Defense of a Liberal Education*) rightly suggests Facebook is as much psychology and sociology as it is technology.¹¹

When such integration does happen, we see how powerful it is when preparation meets opportunity. As a wing commander in Kansas, hosting an airshow, we had flown in metal detectors from another Air Force base to support the necessary security screening. A strong Midwest windstorm the night before the airshow battered the detectors and left them inoperative. But because the First Sergeant of our security forces squadron had served in a medical logistics squadron, he knew that medical logisticians could fix MRI machines—which are based on the same technologies as the metal detectors. That serendipitous connection resulted in the right people repairing the detectors in time to support a successful event. It was a wonderful example of *creative chance at the intersection of discipline!*

At another level of this same idea, while assigned on the Joint Staff several years ago as the Deputy Director for Information and Cyberspace Policy in the J5 (Strategic Plans) directorate, I found myself responsible for sorting out how to establish a new military command, US Cyber Command, with responsibility for a domain that didn’t exist in any measurable way when I graduated from the

challenges of the global network. Rather, I found my role playing out at the intersection of many disparate threads – helping convert engineer- and science-speak to political, global and operational concepts so that leaders across operations, intelligence, and IT communities could better understand the cyber domain. It’s akin to C.P. Snow’s example of advocating for a new technology un-proven at the time of World War II (radar); or advocating for GPS long before automobile drivers put away their car maps for good and began to just type addresses into their phones. It was even clearer after that experience that being able to integrate across disciplines is what allows us to capitalize on those “creative chances.”

But today, my focus has shifted from how we develop commands and processes and policy, to how we can best develop the young men and women who will live, and must learn to lead, in that complex world. Certainly, our graduates must continue to build, maintain, operate, and defend unequaled air and space capabilities for the indefinite future. That is what America’s Air Force does. Yet we must also successfully master appropriate aspects of the cyber domain: both new and modernized air and space systems are so cyber-empowered and cyber-dependent that their value is inseparable from our ability to use that domain; many of our country’s most robust cyber defense capabilities are governmental but not all are DoD; and the majority of networks exist either in civil government or private infrastructure like regional power grids and financial

networks. Complex, sometimes contradictory incentives mix with information sharing, compliance, and regulatory standards imposed by a variety of government agencies to make for a very difficult and often reactionary environment. Beyond

the technical complexities of the problem, we—and the international community—are in the infancy of developing a comprehensive understanding of cyber security that would clarify the structure & limits of civilian and military

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Academy in 1981. Nevertheless, then-Vice Chairman General Cartwright gave me marching orders to take the lead on “everything cyber.” To be sure, I did not learn the intricacies of the computer code or the engineering

authority and cooperation. Here I can offer only a question rather than an answer: how do we build trust and incentives across both industry and government, in a conflict spectrum that as yet recognizes no clear delineation between peace and war?

As departments, governments and international organizations debate such questions, there's tremendous value in using the academic arena to explore new paradigms with the freedom afforded by higher education. It is on these pillars--of developing a new generation of innovative thinkers and bridging the public-private partnership to improve both--that the Academy and Air Force are establishing a center of excellence whose purpose is to improve cyber education while providing rapid and creative solutions to dominate the evolving and contested cyber domain.

Our vision for an Air Force Cyber Innovation Center (AFCIC) is a highly virtualized environment anchored at USAFA, fostering collaboration with the other Service academies, other institutions of higher education, industry, and other government agencies to track and influence the development of innovative, state-of-the-art technology and research—a conceptual “cyber-sandbox.” In doing so, the Air Force will be able to educate and train officers to enter the Air Force well-prepared to keep up with the rapidly-changing pace of technology evolution as we look holistically to integrate operations in our three mission domains – air, space and cyberspace.

Cyber is too complex, too personal, too intertwined, too global for a single town, service, or government agency to claim primacy or even ownership of cyber. Starting with the strong support of the Air Force's senior leadership and centered on the Air Force vision of sustaining an asymmetric operational advantage over any potential adversaries, improving our mastery of cyber's social, operational, strategic and technical challenges will require us to model the domain, by way of interconnected nodes of excellence that inspire collaboration and creativity across geographic and political boundaries.

It is my conviction that cadets and faculty are uniquely postured to tackle these problems from a truly multidisciplinary perspective, within the context and thoughtful appreciation of the multi-order effects across the military, technology, ethical and policy spectrums. It is also my conviction that we have no choice but to tackle and master them.

The Academy curriculum is a case in point that illustrates the delicate alchemy we must achieve to reach such ambitious goals. The “core” constitutes about two thirds of our entire curriculum – 32 courses total in basic sciences, humanities, social sciences and engineering. We have the balance almost exactly 50-50 across the poles I mentioned above. *What* we teach is probably about right; *how* we teach it is where we rise or fall. *Why* we must succeed—why it's important—is increasingly clear in our technologically-dependent, human-driven missions.

Hence, the Academy's Dean of Faculty has been working across the faculty and staff, and has successfully revised our desired outcomes. Faculty members are currently progressing through the arduous work of aligning core curriculum with outcomes in a way that maximizes interdisciplinary learning: a core that will better prepare graduates with the mental agility our Air Force Secretary and Chief know they need. Successful focus on outcomes—which are inherently inter- and trans-disciplinary, and which reflect the capabilities and potentials of student-officers, not the boundaries of any future professional specialty—will inherently lead graduates to be more ready to seize creative chances.

There are formidable challenges to this vision. How do we reconcile the mindsets of those who have spent much of their intellectual lives studying the second law of thermodynamics, with those who have devoted their professional energies to studies of renowned novelist Toni Morrison? Perhaps Samuel Taylor Coleridge's words are fitting: “a great mind must be androgynous.”¹² Our graduates will need to gain and exploit the technical cognizance necessary to operate today's sophisticated technologies and weapons, but they will be under

increasingly complex and significant pressures to do so with the emotional and social intelligence that typically comes from a deeper understanding of the human condition.

After all, we aim to graduate leaders with the moral character and stamina, as Nobel Laureate Arthur Lewis suggested, “to practice the same thing over and over again, while others are enjoying themselves; to push oneself from the easy part to the hard part; to listen to criticism and use it; to reject one’s own work and try again.”¹³ In effect, we aim to prepare cadets to identify their boundaries, to recognize their strengths and weaknesses, and to embrace the realization that our most effective solutions require a witting and continuous melding of scientific and technical disciplines *and* the humanities.

One of the most pleasant and rewarding aspects of the Superintendent’s position is meeting with a broad spectrum of people –faculty and staff, cadets, young men and women that want to join our ranks, and leaders in our Air Force, private industry and government. I was recently on Capitol Hill visiting members of Congress about a variety of issues. As you can imagine, ISIS was at the forefront of many discussions. One point that resonated was that “ISIS is an idea that we can’t bomb away.” Of course, this wasn’t an original or glaring insight, and it obscures the fact that no other military tool alone will be effective either; but for me, that concept reinforces the importance of education – particularly at the military Academies, but really across all higher education – that prepares graduates to employ the full spectrum of human endeavor to solve our world’s problems in creative ways.

If we can rise to the challenge—encouraging the knowledge and attitude that empower leaders young and old to create and take creative chances—our graduates will not find freedom a burden, but rather will find purpose and meaning in exercising, defending, and extending the blessings of freedom.

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Notes

- 1 Andrew Delbanco, *College: What it Was, Is, and Should Be* (New Jersey, Princeton University Press, 2012), xiv.
- 2 Roger Cohen, “Why ISIS Trumps Freedom” *New York Times*, http://www.nytimes.com/2015/08/14/opinion/roger-cohen-why-isis-trumps-freedom.html?_r=0, 13 August 2015, accessed 8 February 2016.
- 3 Richard Riley, quoted in Delbanco, *College*, p. 25.
- 4 Noah Robischon, ed., *Fast Company*, No. 201, Dec 2015/Jan 2016.
- 5 General Mark A. Welsh, III, “A Call to the Future: The New Air Force Strategic Framework,” <http://www.au.af.mil/au/afri/aspj/digital/pdf/articles/2015-May-Jun/SLP-Welsh.pdf>, accessed 8 February 2016.
- 6 The USAF Academy already has programs that target our highest performing students (e.g., the Scholars program). This is true across higher education, as many institutions have honors programs and learned societies with undergraduate members. How do we design experiences that target the ‘average’ student... and bring the very best out in them?
- 7 Delbanco, *College*, p. 162.
- 8 C.P. Snow, *The Two Cultures and the Scientific Revolution*, (London: Cambridge University Press, 1961) p. 10.
- 9 C.P. Snow, quoted in Thomas Ricks, “C.P. Snow (I) on radar, chaff, and science in the years leading up to World War II,” <http://foreignpolicy.com/2013/12/03/c-p-snow-i-on-radar-chaff-and-science-in-the-years-leading-up-to-world-war-ii/>, 3 December 2013, accessed 8 February 2016; C.P. Snow, “The Moral Un-Neutrality of Science,” speech given to the American Association for the Advancement of Science, 27 December 1960, accessed at http://archive.monthlyreview.org/index.php/mr/article/view/MR-012-10-1961-02_2, 7 February 2016; Nancy Scola, “What WWII, Radar, and C.P. Snow Teach About the Intersection of Technology and Politics,” <http://techpresident.com/blog-entry/what-wwii-radar-and-cp-snow-teach-about-intersection-technology-and-politics>, 8 May 2009, accessed 8 February 2016.
- 10 Jonah Lehrer, “Steve Jobs: “Technology Alone is Not Enough.”” *The New Yorker*, (7 Oct 2011), <http://www.newyorker.com/news/news-desk/steve-jobs-technology-alone-is-not-enough>, accessed 7 February 2016.
- 11 Fareed Zakaria, *In Defense of a Liberal Education*, (New York: W.W. Norton & Company, 2015), 83.
- 12 Samuel Taylor Coleridge, *Specimens of the Table Talk of the Late Samuel Taylor Coleridge*, 2 Vols. (London: John Murray, 1835), vol. 2, p. 96.
- 13 Delbanco, *College*, p. 42.