Soldiers in Special Forces Assessment and Selection Class 04-10 participate in log drills during physical training 13 January 2010 at Camp MacKall, North Carolina. (Photo courtesy of Wikimedia Commons)

Reframing the Human Dimension

Gardner's "Five Minds for the Future"

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The U.S. Army spends considerable effort on improving the selection, training, and education of soldiers to prepare them for war. In 2006, the commander of U.S. Army Training and Doctrine Command (TRADOC) shifted the focus from not only looking at how best to prepare soldiers for the "here and now" but also how the future operational environment (OE) might affect the "human dimension."[1] Changes in the OE could cause ripples in how the Army identifies, recruits, develops, assesses, employs, retains, and sustains its most important resource–*its people*.

Successive Army leaders have continued to recognize the importance of the human dimension. A simple computer search produces evidence of a concerted effort over the last ten years to learn, relearn, discuss, and experiment with ideas about the human dimension. The results of these efforts are contained in multiple strategies, regulations, and pamphlets, and in a dizzying array of concepts, white papers, studies, and articles produced by a host of organizations and task forces both internal and external to the Army.

Yet, the Army's search for insights and implications on how best to prepare soldiers for war based on current and future OEs continues. For example, in December 2016, as part of TRADOC's 2017 Unified Quest, experts convened to determine the human performance requirements demanded by current estimations of the challenges of 2035-2050.[2] Previous efforts and studies informed the development of two key documents which guide current thinking, namely: 2014 TRADOC Pamphlet 525-3-7, *The U.S. Army Human Dimension Concept*, and *The Army Human Dimension Strategy 2015*.[3]

This article neither disputes the importance of the effort, nor the key elements found in the plethora of strategies, concepts, and white papers. What this article does offer is an alternative approach, or framework, for considering the competencies we desire by using Howard Gardner's 2008 book *Five Minds for the Future*.[4] Written primarily for educators (and others charged with personnel development), Gardner's work can inform Army thinkers, who, like those in education, face the challenge of determining the competencies and outcomes they want to achieve to prepare their clients for success in the twenty-first century.

Current Thinking on Preparing Future Soldiers and Leaders

Even the casual reader of the 2014 *Army Operating Concept: Win in a Complex World* (*AOC*) would recognize the importance placed on the human aspect of armed conflict.[5] This concept emphasizes the development of the individual soldier and leader as an instrumental component for winning the next battle. The concept clearly identifies the advantage provided by skilled soldiers and well-trained teams equipped with advanced technologies against adversaries across the range of potential future military operations. This future operating concept further emphasizes the importance of human and cognitive sciences to revolutionize the way the Army recruits, manages, educates, trains, and develops leaders and soldiers and the development of competencies in leaders and soldiers critical to successful execution of their future responsibilities.

Under the heading, "Develop innovative leaders and optimize human performance," the *AOC* emphasizes the role of realistic and repetitive training, rigorous education, and self-study to develop leaders and teams.[6] While the specific knowledge, skills, and attributes for soldiers and leaders are not elaborated on in detail in the *AOC*, one can discern the importance placed on the required skills (e.g., cross-cultural competencies, advanced cognitive abilities to think ahead in time to anticipate opportunities and dangers, and adherence to the Army professional ethic) necessary to meet its core competencies (e.g., combined arms maneuver). Army warfighting challenges (AWFCs), which are first-order problems that drive required capabilities, serve as succinct descriptions for how the Army conceptualizes its understanding of the core competencies problem set. Two of the twenty AWFCs are directly linked to the human dimension.

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> Acknowledging the future environment and potential for change, Gardner postulates there are five minds that must be cultivated for success in the twenty-first century.

As highlighted in the *AOC*, the human dimension is defined, in part, as the cognitive, physical, and social components and performance of soldiers, Army civilians, and leaders essential for successful unified land operations.[7] AWFC #9, "Improve Soldier, Leader, and Team Performance," asks: "How [do we] develop resilient Soldiers, adaptive leaders, and cohesive teams committed to the Army professional ethic that are capable of accomplishing the mission in environments of uncertainty and persistent danger."[8] AWFC #10, "Develop Agile and Adaptive Leaders," asks "How to develop agile, adaptive, and innovative leaders who thrive in conditions of uncertainty and chaos and are capable of visualizing, describing, directing, and leading and assessing operations in complex environments and against adaptive enemies."[9]

While the *AOC* outlines the generally needed human dimension capabilities required for the future, a host of other concepts, strategies, and white papers provide additional refinement. To the *Human Dimensions Concept*'s credit, it does identify some desired outcomes, namely optimized job performance by each soldier, civilian, and team; optimized holistic health and fitness; and under the term "maximized Army professionals," individual adherence to ethical decision making, stewardship, and the Army values.[10] The *Human Dimension Concept* reinforces the *AOC* by emphasizing the need for lifelong learning and the linkage between the cognitive, physical, and social components of the human dimension throughout the life cycle of a soldier from initial identification and recruitment through transition to civilian life.

What the concept doesn't adequately do is provide clarity to the problem. Secondly, it makes aspirational claims which are hard to define or assess such as "embedding a learning expertise and culture within units" or "strengthening and accelerating the progression to critical and creative thinking."[11] As Albert Einstein reportedly noted, "Everything should be reduced to its simplest form and then no further."[12] While the human dimension components of the "cognitive, physical, and social" is a useful bumper sticker, it may be too simple to describe what we are trying to achieve.

Gardner's Concept in a Nutshell

Gardner is a professor of cognition and education at the Harvard Graduate School of Education with a PhD in developmental psychology. A prolific writer and scholar, he is perhaps best known for his theory and writings on multiple intelligences. Yet, it is his writing on the competencies needed for the future, encapsulated in his 2008 work, *Five Minds for the Future,* which may offer insights to re-conceptualize the Army's thinking about the human dimension, specifically on how best to develop soldiers and leaders for today and the future.

Gardner acknowledges many of the same megatrend changes that will shape the future identified by the defense community. These trends include the power of science and technology and implications of such things as genetics and globalization. He acknowledges the speed with which new knowledge is accumulating across disciplines and fields requiring continual "self-education" or one will either be quickly overwhelmed or ill informed.[13] The implications of these trends on the Army's future educational and training systems will be profound, perhaps resulting in more frequent, shorter, and more focused resident educational opportunities and the fielding of new learning technologies to support self-study and unit training.

Gardner noted the concept of work will be transformed in the twenty-first century—requiring teams of individuals from many different localities, disciplines, and fields to converge on a problem. Team members will build on each other's knowledge using unique design, systems, and other kinds of thinking to create novel solutions while utilizing computer-assisted decision-making tools. Many of these implications are well known to the Army, and "teams of teams" are commonplace in solving many of the Army challenges within both the institutional and operational arenas. This does not discount the importance and knowledge

of more linear tools such as the military decision-making process.

Acknowledging the future environment and the potential for change, Gardner postulates there are five minds that must be cultivated for success in the twenty-first century. These five minds are the *disciplined mind, synthesizing mind, creating mind, respectful mind,* and *ethical mind*. Gardner acknowledges he is stretching the use of the word mind and could have perhaps more accurately used perspectives or capacities, but the word mind reminds us that individual actions, thoughts, feelings, and behaviors are created in the mind.[14] Gardner places no special emphasis on any one of these minds, highlighting that the development of each is equally important.

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The Disciplined Mind

The word discipline has three connotations, namely the mastery of a field of study, the ability to exercise self-control for self-study, and the mastery of a way of thinking that is tied to the field of study (e.g., scientific thinking).[15] While recognizing the importance of accumulating factual and subject-matter knowledge to attain mastery, Gardner noted mastery is more than simply being capable of regurgitating memorized facts and rules. He originally thought that it would take someone about ten years to attain mastery of a discipline, but given the advances made in computers and learning technologies, he subsequently modified this to five years.[16]

Gardner acknowledged that mastery of a field of study and disciplining the mind requires time, instructors who model applicable ways of thinking and provide opportunities for critical thinking, successful completion of certain signature assignments, and a culminating experience.[17] Mastery does not equate to completion of a set of courses but rather requires lifelong learning to continue to master the field as knowledge is added, refined, and transformed. While mastery of a discipline is clearly tied to the cognitive component, it is greatly influenced by both the physical (i.e., sleep and fitness) and social (i.e., ability to work with others in the discipline) components.

The discipline for mastery for soldiers is the profession of arms: the study of war and warfare. The Army makes a considerable investment in soldier training and professional military education toward mastery of the discipline associated with each soldier's career field and specific level of responsibility. For example, a newly commissioned lieutenant is expected to learn the tactics, capabilities, and employment of a platoon formation in addition to having a certain level of proficiency on issues which enable his or her unit to perform their task (e.g., training management and maintenance). Experience, time, and subsequent education enable the individual to exercise mastery of skills and knowledge at increasingly higher levels and with increasingly complexity within the discipline, but for the military professional that may not be enough.

As Gardner noted, valuable is the individual who has mastery of the interdisciplinary, multidisciplinary, or transdisciplinary.[18] Integration of various military disciplines or warfighting functions (i.e., mission command, intelligence, movement and maneuver, fires, sustainment, and protection) is key to success on the battlefield. For most of us, mastery of multiple disciplines or deep expertise in the other warfighter functions probably isn't achievable. The attainment of multiple perspectives is a more reasonable goal.

For example, a river crossing by a mechanized infantry battalion is a complex mission, especially

if opposed by a smart enemy. Success is not contingent on the expertise of the battalion commander in emplacing the bridge; planning, coordinating, and conducting indirect fires; and paying attention to the host of other details and actions needed. Success is predicated on recognizing the multitude of tasks and coordinating and synchronizing the multiple contributions needed from across the other warfighting functions and domains.

Using Isiah Berlin's analogy of foxes and hedgehogs, the disciplined mind is akin to the hedgehog who knows one thing and views the world through the lens of a single defining idea or discipline.[19] But this type of thinking is not enough. We need to develop the fox who knows lots of little things and has the ability to cope with uncertainty and look at the problem *critically* through multiple lenses.

The Synthesizing Mind

Gardner asserted that in the twenty-first century the most valuable mind will be the synthesizing mind.[20] In essence, synthesizing implies one has the ability to survey the ever-growing accumulation of information from across the disciplines or areas under study, separate the important from the unimportant, formulate and consolidate disparate information into a new whole, understand the big picture, and communicate the syntheses in an understandable form to others.[21] This synthesizing process can result into a new concept or idea, a solution to problem, or a new insight.

As noted by Gardner, the synthesizer must be willing to test his initial synthesis with others—essentially advocating a process of "red teaming"—that provides a critical eye on the product to help refine it and test its accuracy. The effective synthesizer must be able to know enough about other disciplines to assess what is valuable or whom to trust, value constructive challenge, and possess the ability to discern fact from fantasy or illusion.[22] Effective critical thinking skills enable the synthesizer to examine their thinking, perspectives, and assumptions.[23]

Successful problem solving in complex environments demands the development of the synthesizing mind. Today, even junior officers require at least multifunctional and multiperspective awareness. As one either increases in rank or assumes duties at headquarters with successive levels of complexity in planning (e.g., tactical, operational, strategic), solutions require synthesis across warfighting functions, domains, and organizations (e.g., multinational and across the U.S. government). The Army's education system and rank structure reinforces this notion as one becomes more senior, one requires the ability to look across the functions, organizations, and disciplines.[24]

Gardner highlights the importance of synthesizing for leaders. Increasingly, the future will belong to the leader who has or can gain a broader and deeper view of the environment or problem using both linear and nonlinear constructs. This deep perspective can only be developed and improved over a lifetime of study both in formal educational and training programs and in self-study and reflection on one's experiences.[25]

Creating Mind

Many would argue that the creating mind is inherent to American culture and society based on our history and past celebrations of "individual" innovators' accomplishments. For example, the chief of staff of the Army in October 2016 noted that American society was full of improvisators, innovators, and problem solvers.[26] Our universities and colleges welcome foreign students who come not only for an excellent education but also to learn how to be successful innovators and change agents.

While it is accurate to highlight the importance of both individual intelligence and skills, combined with a culture that embraces innovations to be creative, Gardner argues creativity is the product of temperament combined with mastery of one or more disciplines and an ability to synthesize.[27] Creators and innovators are continually dissatisfied, seeking better answers and offering different questions. Innovators want to extend knowledge and shake up the status quo—often created by the synthesizers within society.[28] But, it is important to note, "no society can be composed solely of creators, they are by nature destabilizing."[29]

To respond to changes in OEs, the development of innovators is a paramount requirement, particularly to solve problems at all levels within the Army. The challenge is not so much to create "inventors" who develop new things, but rather it is to develop talented creative thinkers who can define problems in clear language to others, who encourage and create the conditions for teams to seek out new solutions

to problems, and who can manage the process of innovation. As the *AOC* highlights, innovation is the result of critical and creative thinking, and the conversion of new ideas into valued outcomes not confined to any one organization.[30]

Developing the creating mind requires the Army to reexamine its education and leader development programs; these programs need to address innovation theory and best practices rather than simplify defining the requirement for innovation sprinkled with historical examples of successful innovation. It requires the teaching of tools on how leaders of ad hoc teams can solicit and foster teamwork among individuals from across the organization to work a problem using various techniques like design thinking to develop and create the conditions for innovative ideas to solve problems.

The Respectful Mind

Gardner recognizes the power of "tribal instincts" that often result in viewing what is considered "strange or unfamiliar" as bad.[31] Gardner calls for respecting others and valuing those who belong to other groups. He places emphasis on the importance of role modeling this respectful behavior, especially among leaders.

Given the diversity found in the Army, maintaining respect among individuals is paramount to building trust and effective teams. The Army is not immune to the existence of the toxic leader who berates and belittles. Leaders must not only *emphasize* the importance of treating everyone with dignity and respect but also *model* this behavior in their interactions. Leaders must mentor and counsel those who do not live up to this goal.

All soldiers must not only "talk the talk" but also "walk the walk" in their relationships with subordinate, peers, and superiors and extend these ideas when dealing with other components, services, and allied individuals and organizations. The Center for the Army Professional Ethic is leading the Army's effort to develop a concept for the character development of soldiers and Army civilians that emphasizes the respectful mind as a key ingredient to good character.[32]

Effective leaders view diversity as strength, particularly in terms of problem solving. As University of Virginia professor Martin Davidson noted, diversity should be seen as a source of power in solving problems. In leveraging diversity we create the conditions where different thoughts, identities, and perspectives are present, which results in the simulation of more complex and innovative ideas to achieve greatness.[33]

With global responsibilities, the U.S. Army operates in and with many nations and cultures. While the Army must create deep country and regional knowledge among select people and units, it must also develop cross cultural-competency in all soldiers. These cross-cultural competency skills provide the ability for individuals and units to operate effectively in and with different cultures and foreign military forces. While soldiers may not understand or agree with aspects of a foreign culture, to include its customs, we must inculcate an attitude of respect for these differences unless we desire alienating the population.

Ethical Mind

Gardner's discussion of the ethical mind is intentionally broad given its focus on the larger aspect of life, namely doing work that is excellent, ethical, engaging, and benefits the community and society as a whole.[34] He addresses the ethical mind's linkage to character and the organizational and societal challenges to living an ethical life. Gardener encapsulates his idea into the term "habits of mind," whereby ethical behavior and decision making are engrained in what and how we do things.[35]

Ethics governing right and wrong conduct are embedded in the Army profession. Army Doctrine Publication 1, *The Army*, highlights the challenges warfare places on the morals and ethics of soldiers in the management of violence.[36] While adhering to ethical behavior on the battlefield and following the laws governing warfare is the legal and moral right thing to do, it also distinguishes American soldiers as good citizens with pride in their service to the Nation.[37] As noted by Paul Robinson, effective fighters are ethical fighters, and immoral behavior, even by the lowest ranking soldier, can have a strategic effect and far-reaching consequences.[38]

As members of the profession of arms, each soldier and Department of the Army civilian adheres to the "Army Ethic," which is the body of principles and values governing the profession. Included in this ethic is the requirement to be

- professionals of character (i.e., serving with integrity and respecting the dignity and worth of all people),

- competent professionals committed to lifelong learning and professional development, and
- stewards and committed professionals of the Army profession.[39]

Leaders must model and enforce ethical behavior and live the Army Ethic. Organizational procedures need to be examined in the light of how they foster unethical behavior.[40] Soldiers and Army civilians need effective student-focused training using case studies and other techniques—beyond the yearly "PowerPoint Ethics" briefings—to ensure they do the right thing not because they've been told to but because they want to do it as engrained in their character. Field training must include the types of challenges they might face not only from the Law of War framework but also from a broader ethical standpoint.

As one respected professor of ethics notes:

> People say you can't teach ethics, and I say, "You know, you're right." What I can do is I can point out to you how your behaviors—every one of them—have an ethical, moral dimension. People judge you as to whether you tell the truth, keep your promises, respect others and treat people with fairness. Whether you like it or not, people judge you on one or more of those four dimensions in everything you do.[41]

Mind of a Leader and a Follower

While Gardner recognized other minds might exist, he noted he was not ready to add them to his five minds paradigm. For the Army, the development of soldiers to think and act as leaders and to be effective followers is essential.[42] As noted in the *Army Posture Statement 2016*, leader development is especially critical as one of the four components of readiness to maintain an Army prepared to win the Nation's wars.[43]

Unlike industry or most other professions, the Army cannot externally hire a battalion commander or platoon leader but must grow them internally.[44] Leaders must gain self-awareness of their abilities and shortfalls, continually reflect to improve their leadership abilities, and learn theory and techniques of how to lead from history and from contemporary practitioners. Leaders must understand the tenets of mission command, the importance of communication, how to create a shared vision, and the importance of organizational culture.

Surprisingly, given the symbiotic relationship between leaders and followers, the development of followership, or being a good "follower," appears to be less appreciated among Army professionals. The assumption often made is that if one has been an effective leader, one will be an effective follower. But, just as one can grow in leadership abilities, one can grow in the ability to be a more effective follower.

It is incumbent upon followers to support the relationship between themselves and their leaders to develop an understanding of the style, personality, and needs of each boss. Knowledge of how to provide support to meet a boss's needs, ways to provide honest and candid advice, and when to challenge, especially on grave or ethical issues, do not have to come solely from hard experience. The development of interpersonal skills (raising one's emotional intelligence) is just as important to a follower as it is to a leader.

Closing Thoughts

Arthur Chickering, an educator with nearly fifty years' experience in higher education, highlighted the importance of higher education routinely examining its core ideals and practices based on changing domestic and international requirements.[45] A similar attitude is needed within the Army for reexamining its human dimension concept, especially given the dynamic nature of technology, demographics, and other key variables found in contemporary and future OEs.

While the Army's focus on the cognitive, social, and physical dimensions isn't off the mark, the advantage of Gardner's five minds paradigm is that it may enable us to better visualize not only the requirements but also the outcomes we want to achieve.[46] Creating soldiers and leaders who are ethical masters of the profession of arms and can lead and respectfully serve others while being innovative problem solvers is a tall order. Yet, the consequences of not developing these minds for the future will be severe—spelling the difference between success and failure. As Gen. Pete Schoomaker, a former chief of staff of the Army, noted in his departing remarks:

> We must never forget that war is fought in the human dimension. Therefore,

technology will always play an important but distinctly secondary role, because even our most sophisticated satellites and computers cannot get into the mind of the enemy, interact with local leaders, understand other societies and cultures, or make the instantaneous life or death decisions required to meet our 21st century challenges. Men and women with their "boots on the ground" are necessary to do all this.[47] ■

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Notes

1. David Vergun, "Army Exploring 'Human Dimension,'" Army.mil website, 4 February 2013, accessed 25 May 2017, https://www.army.mil/article/95675.

2. Army Capabilities Integration Center, U.S. Army Training and Doctrine Command (TRADOC), "The U.S. Army Human Dimension Concept," U.S. Army Stand-To! website, 29 November 2016, accessed 16 May 2017, https://www.army.mil/standto/2016-11-29.

3. TRADOC Pamphlet (TP) 525-3-7, *The U.S. Army Human Dimension Concept* (Fort Eustis, VA: TRADOC, 21 May 2014), accessed 24 May 2017, http://tradoc.army.mil/tpubs/pams/TP525-3-7.pdf; *The Army Human Dimension Strategy 2015* (Combined Arms Center, Fort Leavenworth, KS, 1 June 2015), accessed 12 May 2017, http://usacac.army.mil/sites/default/files/publications/20150524_Human_Dimension_Strategy_vr_Signature_WM_1.pdf.

4. Howard Gardner, *Five Minds for the Future* (Boston: Harvard Business School Press, 2008).

5. TP 525-3-1, *The U.S. Army Operating Concept: Win in a Complex World, 2020-2040* (For Eustis, VA: TRADOC, 2014), accessed 24 May 2017, http://www.tradoc.army.mil/tpubs/pams/TP525-3-1.pdf.

6. Ibid., 20. While the triad of training, education, and self-development is often cited, the other triad often used is training, education, and experience (such as found in TRADOC Regulation 350-70, *Army Learning Policy and Systems*, 23).

7. Ibid., 42

8. "Army Warfighting Challenges," Army Capabilities Integration Center website, as of 31 January 2017, accessed 15 May 2017, http://www.arcic.army.mil/App_Documents/AWFC-Current.pdf.

9. Ibid.

10. TP 535-3-7, *The U.S. Army Human Dimension Concept*, 9–10.

11. Ibid., 10–13. Volumes have been written on critical and creative thinking and how difficult it is to define, teach and assess these higher order thinking skills. For example, see Daniel T. Willingham, "Critical Thinking: Why Is It So Hard to Teach?," *American Educator* (Summer 2007): 8–19, accessed 12 May 2017, http://www.aft.org/sites/default/files/periodicals/Crit_Thinking.pdf.

12. See "Everything Should Be Made as Simple as Possible, But Not Simpler," Quote Investigator website, accessed 31 May 2017, http://quoteinvestigator.com/2011/05/13/einstein-simple/; "Albert Einstein Quotes," Albert Enstein Site Online, last updated 8 January 2012, accessed 31 May 2017, http://www.alberteinsteinsite.com/quotes/einsteinquotes.html.

13. Gardner, "Five Minds for the Future" (presentation, International School of Geneva Ecolint Meeting, Geneva, Switzerland, 13 January 2008), accessed 24 May 2017, https://howardgardner01.files.wordpress.com/2012/06/five-minds-for-the-future-january-20081.pdf.

14. Gardner, *Five Minds*, xv. In the past, joint doctrine contained similar language that included the term "cognitive dimension," which encompasses the mind of the decision maker and the target audience. This is the dimension in which commanders and staff think, perceive, visualize, and decide. See Joint Publication 3-0, *Operations* (Washington, DC: U.S. Government Publishing Office [GPO], 2008), II–21 (obsolete).

15. *Merriam-Webster Online*, s.v. "discipline," accessed 24 May 2017, https://www.merriam-webster.com/dictionary/discipline.

16. Gardner, *Five Minds*, xviii. This estimate of five years is similar to Malcolm Gladwell's estimate contained in his book *Outliers* (New York: Little, Brown, 2008). Gladwell provided the oft quoted "10,000 hour rule," which is the time it takes of practice to become an expert. Both authors acknowledge that their estimates applied primarily to the cognitive activities of life and do not account for natural talent or abilities. This talent issue is particularly true in physical activities (e.g., inherent ability to throw a baseball). Gladwell's estimate of 10,000 hours = 8 hours a day of practice x 5 days a week = 1250 days/250 weeks/4.8 years. See Eric Levenson, "Malcolm Gladwell Defends Disputed '10,000 Hours' Rule," *The Atlantic* online, 22 August 2013, accessed 24 May 2017, http://www.theatlantic.com/entertainment/archive/2013/08/malcolm-gladwell-defends-disputed-10000-hours-rule/311884/.

17. Gardner, *Five Minds*, 31. The literature is full of references highlighting the importance of critical thinking, yet there is wide diversity of definitions, needed and associated skills, required outcomes, and pedagogies to assist students to become "critical thinkers."

18. Gardner, "The Five Minds for the Future," *Studies in Education* 5, no. 1/2 (Spring/Fall 2008): 18.

19. Isaiah Berlin, *The Hedgehog and the Fox: An Essay on Tolstoy's View of History* (Princeton, NJ: Princeton University Press, 2013).

20. Gardner, "The Five Minds for the Future." Given the advances in artificial intelligence and the availability of information, the need for synthesis in order to create new knowledge from information will become more important. For example, as related by one colleague, one might know as a fact that a tomato is a fruit and a fruit

salad contains bits of different fruit, but it is knowledge that tells one that tomatoes don't go in a fruit salad.

21. Gardner, "The Synthesizing Mind," chap. 3 in *Five Minds*.

22. One of the most critical challenges in the twenty-first century will be discerning and judging what is valuable and true. For example, a Pew study in December 2016 noted that more than 80 percent of those surveyed noted they could very well or somewhat well determine what information is trustworthy. See John B. Horrigan, "Information Overload," Pew Research Center website, 7 December 2016, accessed 24 May 2017, http://www.pewinternet.org/2016/12/07/information-overload. Conversely, other news outlets and journals have highlighted the challenge for many to discern fake news from real news. See Wynne Davis, "Fake or Real? How to Self-Check the News and Get the Facts," NPR website, 5 December 2016, accessed 12 May 2017, http://www.npr.org/sections/alltechconsidered/2016/12/05/503581220/fake-or-real-how-to-self-check-the-news-and-get-the-facts. Scholars are also challenged to discern the accuracy of studies, which is one of the reasons doctoral students spend significant course work in research methodology courses.

23. While defining and gaining consensus on the definition of critical thinking is difficult, based on the author's reading, these competencies are essential to being a critical thinker.

24. Senior officers (i.e., general officers) in the operational environment are expected to be proficient in the synchronization of the various warfighting functions and organizations (mission command, movement and maneuver, intelligence, fires, protection, and sustainment) or in the institutional Army be capable of the integration of doctrine, organizations, training, materiel, leadership (development), personnel, facilities, and policy. In a 2003, Army War College study on strategic leadership competencies, more than sixty competencies (knowledge, skills, and attributes) were identified. Core qualifications for the senior executive service include leading change, leading people, results driven, business acumen, and building coalitions—with twenty-two qualifiers. Leonard Wong et al., *Strategic Leadership Competencies* (Carlisle Barracks, PA: Strategic Studies Institute, 2003).

25. This will be increasingly important for the twenty-first century. As the futurist Alvin Toffler noted in 1970 in *Future Shock*, the illiterate of the twenty-first century will not be those who cannot read and write, but those who cannot learn, unlearn, and relearn.

26. Rick Maze, "Radical Change Is Coming: Gen. Mark A. Milley Not Talking about Just Tinkering around the Edges," Association of the U.S. Army website, 13 December 2016, accessed 12 May 2017, https://www.ausa.org/articles/radical-change-coming-gen-mark-milley-not-talking-about-just-tinkering-around-edges.

27. Gardener, "The Five Minds for the Future," 20.

28. Gardner, *Five Minds*, 98. For another similar form of characteristics necessary for innovation see David Horth and Dan Buchner, "Innovation Leadership: How to Use Innovation to Lead Effectively, Work Collaboratively, and Drive Results," *Center for Creative Leadership (CCL)* (white paper, Greensboro, NC: CCL, 2008), accessed 12 May 2017, http://www.ccl.org/wp-content/uploads/2015/04/InnovationLeadership.pdf.

29. Gardner, *Five Minds*, 99.

30. TP 525-3-1, *The U.S. Army Operating Concept*, 20.

31. Gardner, *Five Minds*, 104.

32. Details on the Center for Army Professional Ethic (CAPE) can be found at their website, http://cape.army.mil/.

33. Martin N. Davidson, "The End of Diversity: How Leaders Make Differences Really Matter, *Leader to Leader Journal* (Spring 2012), accessed 12 May 2017, http://www.leadertoleaderjournal.com/sample-articles/the-end-of-diversity-how-leaders-make-differences-really-matter.aspx. For more details see Davidson, *The End of Diversity as We Know It* (San Francisco, CA: Berrett-Koehler Publishers, 2011). See also Alan S. Berson, "Profiting from Diversity: Leading 'Purposely Mis-matched' Teams to Success," Wharton@Work, Nano Tools for Leaders website, July 2016, accessed 12 May 2017 http://executiveeducation.wharton.upenn.edu/thought-leadership/wharton-at-work/2016/07/profiting-from-diversity.

34. Gardner, *Five Minds*, 127. Chapter 6 outlines his focus on the larger community and society.

35. Ibid., 150.

36. Army Doctrine Publication (ADP) 1, *The Army* (Washington DC: U.S. GPO, 6 August 2013).

37. Ibid., 2-19.

38. Paul Robinson, "Ethics Training and Development in the Military," *Parameters* 37, no. 1 (Spring 2007): 25.

39. CAPE, *The Army Ethic White Paper* (West Point: NY: CAPE, 11 July 2014), 11, accessed 16 May 2017, http://cape.army.mil/repository/white-papers/Army-Ethic-White-Paper.pdf.

40. Leonard Wong and Stephen J. Gerras, *Lying to Ourselves: Dishonesty in the Army Profession* (Carlisle Barracks, PA: Army War College Strategic Studies Institute, 2015). While this monograph highlights the challenges found in the Army, dishonesty is just as prevalent in business, as cases illustrate the problem where incentives forced mechanics to invent problems and banking officials to generate sales and commissions.

41. Jacquelyn Lazo, "Alec Horniman: Change Agent," *The Darden Report* (Fall/Winter 2012), 17. The author participated in several classroom sessions with Dr. Horniman as a student in Darden's Executive Education Program at the University of Virginia and heard many of these same comments.

42. While the focus is on soldiers, this doesn't preclude the development of the civilian cohort as well.

43. Patrick J. Murphy and Mark A. Milley, *A Statement on the Posture of the United States Army 2016*, presented to the 114th Congress, 2nd sess. (Washington, DC: Department of the Army, March-April 2016), 6, accessed 16 May 2017, https://www.army.mil/e2/rv5_downloads/aps/aps_2016.pdf. The four components of readiness are manning, training, equipping, and leader development.

44. ADP 6-22, *Army Leadership* (Washington, DC: U.S. GPO, August 2012). Doctrine defines an Army leader as "anyone who by virtue of assumed role or assigned responsibility inspires and influences people to accomplish organizational goals."

45. Arthur Chickering, "Reclaiming Our Soul: Democracy and Higher Education," *Change* 35, no. 1 (Jan–Feb 2003): 35, 39–44.

46. See Valerie L. Denomy and Michael Perry, "Education for the 21st Century: Executive Summary," Harvard University Advanced Leadership Initiative Think Tank (Cambridge, MA: Harvard Advanced Leadership Initiative, 2014), accessed 16 May 2017, http://advancedleadership.harvard.edu/files/ali/files/2014_education_report_web.pdf. This initiative posed a similar question: Are schools teaching for what is needed at work and to live fulfilling lives (cognitive, interpersonal, and intrapersonal skills)? This group consisted of education experts as well as experts outside education from across the disciplines to identify the essential skills for the twenty-first century.

47. Gen. Peter J. Schoomaker, "Farewell Message from General Peter J. Schoomaker," Army website, 6 April 2007, accessed 16 May 2017, https://www.army.mil/article/2565.