Leadership for Seapower

Intellectual competitive advantage in the cognitive/judgment era

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The *Education for Seapower* (E4S) study—the first comprehensive report charting the future of Naval education in 100 years—contains several important and promising elements. These include an explicit emphasis on thinking, cognition, and judgment; identifying the need to instill an attitude of curiosity and a quest for life-long learning among the Naval force; and recommendations to change our Professional Military Education (PME) institutions to impart our future strategic leaders with the mental agility, ability to think critically, and judgment necessary to develop and maintain an intellectual competitive advantage. Such themes reinforce calls in the *National Security Strategy* for renewing America's competitive advantages and in the *National Defense Strategy* for cultivating workforce talent to build a more lethal force.[2] They are also evident in the newly released *Commandant's Planning Guidance* (CPG),[3] and as the work of the Close Combat Lethality Task Force demonstrates, increasingly more capabilities are being pushed to lower and lower levels, further necessitating the need for judgment and thinking at all levels.[4]

However, in order to implement the important insights and conclusions in E4S, we must also nurture and edu-cate for *strategic leadership for seapower*, which encompasses both the leadership *function* in our organizations as well as how we *educate* future strategic leaders. Unless we remain particularly attentive to the role of leadership, our management and organizational structures (most of them developed for an earlier era) can unintentionally impede the proper unfolding and effectuating of the E4S vision. Leaders also need to identify and push back on barriers to its implementation if we are truly

to nurture and grow the attitudes and skills for critical thinking.[5]

The purpose of this article is to broaden our understanding of and clarify two interrelated themes concerning leadership and the education of leaders.[6] First, we identify some of the societal, managerial, and organizational characteristics of the industrial, knowledge, and judgment (cognitive) eras as well as their resulting implications for PME and the development of critical thinkers and strategic leaders. This is important to improve our understanding of the differences between the eras (and the kinds of skills and organizations necessary to adapt) and ensure our PME institutions educate for the themes important to the current era, not a past one.[7] Additionally, the CPG notes the need to codify a post-Industrial Age model of training and

There will be a requirement for new skills and capabilities throughout PME institutions. (Photo by LCpl Jasmine Price.)

educating Marines; we aim to fill this gap.[8] Second, we stress some organizational and human elements leaders need to be cognizant of, as well as, obstacles in our old structures they need to challenge, in order to achieve the objectives of E4S. In particular, we emphasize the importance of decentralization, intent, and initiative. Underlying both themes is our belief in the centrality of our people. Our most important strategic asset is our warfighters. PME must focus on developing them into future strategic leaders so we can maintain and exploit our intellectual competitive advantage.[9]

PME after the Industrial Era: Educating for Thinking

Organizational changes and reform movements are typically influenced by larger economic and societal trends. Such trends, and the changes in the

> *"We must change the Training and Education Continuum from an industrial age model. At present, our entire system for formal schools management reinforces the industrial age model and therefore needs to be changed."*[10]
>
> **—CPG**

characteristics of the external environment that accompany them, can lead to societal or paradigmatic shifts in the kinds of skills, capabilities, attitudes, and values needed to remain competitive.[11] Leaders and organizations must adapt to these shifts, which also carry important implications for the different characteristics and skills organizations should value in their strategic leaders as well as how they educate or identify them.

Major Era / Paradigm	Industrial Era	Knowledge Era	Cognitive / Judgment Era
Central Themes	• Goals and results expressed quantitatively. • Positioning in relation to competition. • Pursuing efficiency within a relatively stable strategic environment. • Economies of scale and scope. • "Man the equipment." • Interchangeable parts, interchangeable people; standardization. • Work reduced to its smallest elements. • Emphasis on control—rules, procedures, processes. • Tangible assets. • Determinism and prediction.	• Managing processes and resources to maintain competitive advantage. • Talent management; people more important to the success of a business than machines. • "Equip the man." • Intangible assets and resources. • Higher education for the general population. • Majority of people no longer produced an actual product. • Fewer management layers. • Sources of power shifted from owner/managers to the individual.	• People and their ability to think at the core of competitive advantage. • Making judgments based on principles, values, and beliefs. • Leading for intellectual competitive advantage. • Agility, innovation, thinking. • Developing and leading agile capabilities. • Predictably unpredictable. • Intangibles, especially human resources. • Holistic understanding.
Types of Problems Confronted	• Familiar, repetitive, well structured.	• Less well structured, complicated (but usually not interactively complex).	• Wicked, genuinely ill structured.
Leadership & Decision Making Skills Valued	• Planning and routines. • Functional specialties. • More management layers, bureaucracy. • Centralized decision making. • Central leadership role: authority and power.	• Coordination. • Analytical problem solving. • Planning to reduce uncertainty. • Managing processes to improve efficiencies. • Managing incentives and rewards. • Shift from manager to leader. • Empowerment; people with power to make decisions. • Central leadership role: "Me- leadership;" leaders and followers.	• Adaptive and agile leaders. • Multidisciplinary problem solving. • Listening and learning. • Understanding and inspiring people; trust. • Communicating intent. • Embracing ambiguity and leading strategic transformations for organizational effectiveness. • Central leadership role: "We-leadership" (e.g., importance of identification with the organization, more than just incentives matter).
Learning and Educational Emphasis for Developing the Required Skills & Attitudes	• "Hired hands" not hired for their minds. • Thinking generally neither required nor encouraged. • Training directly related to skills needed for work.	• Instructional learning. • Analysis. • Understanding motivations and rewards.	• Transformational learning. • Thinking. • Judgment. • Being comfortable and able to make decisions under uncertainty. • Holistic and integrative decision making. • Initiative and imagination.

Table 1. Trends relevant to PME.[1]
(Adapted and expanded in part from Gray and Otte, **Conflicted Leader,** *33-67.*

Table 1 identifies some key themes differentiating the eras since the last major report on Naval education, the types of problems organizations have encountered, and the leadership and decision-making skills that are needed in environments featuring different levels of stability and uncertainty. Over time, several basic (often overlapping and interrelated) trends have emerged, including:

• Increasing uncertainty and ambiguity and increasingly more ill-structured problems that require broader holistic understanding and problem solving (as opposed to the earlier eras' emphasis on determinism and prediction).

• Increasing interdependencies in the strategic environment, which necessitate more strategic leadership of larger ecosystems and less of an emphasis on the management of resources.

• Increasing emphasis on thinking, initiative, imagination, innovativeness, and instinct as key decision makers and leadership qualities.

A mere summary view of the columns reveals a crucial point concerning PME: the education of strategic leaders in the cognitive/judgment era requires more than a simple extension or replacement of what was needed in earlier eras. Rather, since the current and future strategic environments are likely to be increasingly complex, leaders must be capable of understanding, thinking through, and making decisions concerning a wider range of challenges and threats to enable our organizations to adapt more quickly than our adversaries.[12] Leaders and decision makers at all levels must be comfortable embracing and navigating through uncertainty, ambiguity, and chaos (perhaps even using it to create strategic advantages) while being able to use and synthesize information from many different sources and perspectives quickly. Thus, educating for *thinking* and *judgment* takes on increasing importance, as E4S correctly notes, since we can no longer rely on trying to reduce uncertainty, breaking down problems to their component parts to facilitate analysis, or waiting until we have enough knowledge to make decisions in any maximizing sense.[13] Current leaders and educators in PME must be cognizant of these trends. They must also be aware of some key ingredients in nurturing thinking and developing values and attitudes in students because simply acquiring knowledge and learning analytical techniques is no longer sufficient. This also requires changes in teaching methodologies as active minds are best developed through active learning approaches.

Educating for Lifelong Learning

The cognitive/judgment era demands new styles, skills, and capabilities of strategic leaders, requiring them and their organizations to be agile and adaptive and quickly identify underlying dynamics in unfamiliar environments—including those in cultures quite different than ours. Leaders must not only meet the challenges of today's environment, but also prepare to adapt to the changing strategic environments

> ## *Develop a habit of interdisciplinary problem solving.*

of the future. This lends added credence to the importance of agility and educating leaders who can think, exercise good judgment, change, and adapt when needed—which is quite different from the emphasis in earlier eras on efficiency managers. Current and future leaders must embrace and be able to lead through ambiguity and change, rather than try to reduce and manage it. They must not be afraid of listening to and learning from others, or of being wrong. *An appetite for lifelong learning helps in this regard, but it does not address how we educate and inculcate these traits in our leaders.* While most people are born curious, years (and sometimes decades) in either disciplinary or functional silos—especially when coupled with a zero defect or organizational check-list mentality—can be discouraging and detrimental to curiosity, thinking, and discovery.

Imparting the attitudes and ways of thinking critical to the development of future strategic leaders and meeting the demands of the cognitive/judgment era is not easy.[14] Developing active and agile minds takes active learning. Cases, games, experiments, and simulations all cultivate thinking, judgment, and learning under ambiguity. Most of the critical attitudes and ways of thinking simply cannot be taught through instructional learning. Attitudes, rather than functional knowledge and content to be analyzed and memorized, can provide the real integrating force in the development of strategic and innovative leaders. We suggest the following to be central:

• Develop a habit of interdisciplinary problem solving and learning techniques such as problem recognition and framing. While this may seem straightforward, it involves difficulties such as:

■ Seeing problems as they really are, neither as we would like them to be

Developing active and fragile minds takes active learning. (Photo by LCpl Phuchung Nguyen.)

nor as they appear through certain disciplinary lenses. Historical case studies can help.

■ Wide reaching analyses of alternatives in considering solutions to problems—including unthinkable, unlikable possible futures—to help broaden the mind to be aware of biases, habits, and our almost instinctual preference for the status quo.

■ Thinking critically and constructively about getting things done and barriers to implementation.

■ Flexibility of thinking and action and the mental agility to adapt.

• Develop a certain level of comfort dealing with ambiguity, wicked problems, and synthesis beyond mere analysis. Taking broader, more systematic views of problems and behavior, including understanding the values and culture of others and how they think about and view themselves and us through their eyes, however, is easier said than done. It requires leaving the comfort of our own analytical frameworks, trying to look at problems through different lenses, and cultivating a sense of team spirit in our units and organizations wherein everyone can learn from one another. Ambiguity and wicked problems also increase the importance of trusting subordinates, decentralized decision making, and focusing more on command (e.g., intent) than control in order to enable more rapid decision making.

• Inspire a habit of lifelong learning and foster a culture of curiosity. Reading broadly helps us remain receptive to new ideas and ways of doing things outside of our own area of expertise or experience, but not at the expense of an intelligent skepticism. Curiosity and initiative are important underlying themes of learning, experimenting, and keeping an open mind.[15]

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Closing: Some Characteristics of Adaptive and Agile Leaders in the Cognitive/Judgment Era

While all are important and are emphasized directly or indirectly by E4S, these attitudes and ways of thinking are very fragile and can be squashed by bureaucratic tendencies toward control and micro-management and personnel practices that are artifacts of another era and have failed to evolve. Leading

for agility and adaptiveness is different than managing for efficiency. In the cognitive/judgment era, there are important leadership themes that should guide how we seek to develop the skills and attitudes (before, during, and after PME at each rank) necessary to help facilitate the continued unfolding of educating and thinking for seapower:

• Embrace mission command and focus on commander's intent, not control. Understanding the mission and intent is paramount. Processes put in place to help achieve the end state should always be treated as secondary and not ends in themselves. Focusing on making checklists and on checking things off, regardless of whether it gets one closer to achieving the end state, is a common managerial trap that must be avoided since it does not allow for quick adaptation to changes in the external environment.

• Encourage curiosity, thinking, experimentation, and learning—including from failures. The innovative thinking praised in E4S and key to effective strategic leadership does not result from following plans, applying models of analysis to well-structured problems, or from always doing what one is good at. Rather, it requires experimenting with different things and the courage and curiosity to think differently. Leaders can encourage this type of thinking by de-emphasizing titles (the merit is in the idea, not the title), hierarchy, and rank while actively seeking ideas and feedback from the most junior ranks.[16] Good leaders must be very good listeners, too.

• Encourage broad study and debate. Part of encouraging people to think critically, which in turn helps foster the initiative and imagination necessary for warfighters to follow the

Commander's intent and accomplishment of the mission are paramount. (Photo by Cpl Timothy Lutz.)

commander's intent, is understanding the complexity of the problems we face and seeing them through many different lenses and in a holistic way. Focusing on what one particular discipline or angle can capture is quite misleading, as was the case when systems analysis showed we were winning in Vietnam.[17] Broad study and debate reinforce the previous theme and also encourage lifelong learning.

• Leverage ambiguity and agility in thinking to create and lead through strategic surprises. It would certainly simplify matters if we knew in advance all the options and corresponding outcomes leaders face and could simply choose the most desirable one. However, outside of textbooks, such certainty is absent. Instead, our leaders can out think our adversaries rather than try to out-analyze them.[18]

Fully embracing thinking and leading for seapower entails senior leaders seeking input from and listening to subordinates, embracing unconventional ideas and approaches, and tolerating failures as opportunities to learn. Doing so takes some correspondingly radical changes in our bureaucratic organizations and processes. While not always mutually exclusive, the kind of maverick strategic leaders needed to enact these changes must be more committed to doing the right thing than they are to their careers. E4S is a good step in the right direction in it recognizes the centrality of warfighters, thinking, and judgment. Achieving success on the battlefield requires understanding both the art and science of warfare, but the science should serve the art (i.e., thinking, cognition, and judgment), not the other way around.

The Naval Services might find inspiration in how other professions and their educational institutions have transformed and improved in the past. In particular, the "Flexner Report," the comprehensive study by Abraham Flexner published over 100 years ago, helped significantly reform and improve medical education in the United States. As such, useful next steps for the Naval Services and their PME institutions might include conducting follow-on mini-Flexner reports to see

not only the extent to which they are educating for seapower but whether they are organizing and leading for it. This will require intellectual and moral courage to change current practices and the prevailing status quo as opposed to trying to adapt new rhetoric to simply reinforce the status quo. Noting the example of Col John Boyd, USAF(Ret), and the preeminence of moral courage among the list of virtues demanded by the military profession, retired Marine Col Michael Wyly—who was the first to introduce maneuver warfare thought in a formal Marine Corps PME setting and was later fired for it—reflects,

> Officers with Boyd's degree of moral courage need to be the norm, not the mavericks. Another way of putting it is that we all need to have the courage to be mavericks when institutional thought stagnates.[19]

The path to progress is never easy, but our Nation's security demands we prep our gear and move out.

Notes

1. We are grateful to Gen Alfred Gray, USMC(Ret) and MajGen William Mullen for comments on earlier versions and discussions on the topics. Any remaining errors were produced without help.

2. President of the United States, *National Security Strategy of the United States of America,* (Washington, DC: 2017). See also, Office of the Secretary of Defense, *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge,* (Washington, DC: 2018).

3. Gen David H. Berger, *Commandant's Planning Guidance*, (Washington, DC: 2019).

4. For an overview of these capabilities and the work of the Close Combat Lethality Task Force, see Todd South, "Tactics, Tech and Work of Close Combat Experts Is Turning Warfare 'Upside Down,'" *Military Times,* (Online: June 2019), available at https://www.militarytimes.com.

5. These barriers include certain routines and bureaucratic processes, as well as the natural inclination toward inertia that organizations typically exhibit. We do not intend to suggest there is not a need for a certain degree of bureaucratic structure and processes. However,

they oftentimes stand in the way of positive change (or any change, really) that is essential to organizational agility and adaptiveness. For example, reflecting on his time as Secretary of Defense, Robert Gates writes,

> The very size and structure of the department assured ponderousness, if not paralysis, because so many different organizations had to be involved in even the smallest decisions. The idea of speed and agility to support current combat operations was totally foreign to the building.

Robert M. Gates, *Duty: Memoirs of a Secretary at War* (New York, NY: Alfred A. Knopf, 2014). In his 2018 National Defense Strategy, former Secretary James N. Mattis similarly observes,

> The current bureaucratic approach, centered on exacting thoroughness and minimizing risk above all else, is proving to be increasingly unresponsive.

Summary of the 2018 National Defense Strategy.

6. In doing so, we purposefully aim to be less prescriptive than—while still hopefully complementing—others who write about PME. For a sample of such articles, see "Educating the Force," *War on the Rocks,* (Online), available at https://warontherocks.com.

7. The E4S study identifies a "Cognitive Age." Gray and Otte use the term "Judgment Revolution" in their discussion of similar themes. See Al Gray and Paul Otte, *The Conflicted Leader and Vantage Leadership,* (Columbus, OH: Franklin University Press, 2006). Gen Gray's intent for Marine Corps PME, for example, was to teach military judgment, not material to be memorized. See Commandant of the Marine Corps to Command General, Marine Corps Combat Development Command, "Training and Education," 10 October 1988, located in the Alfred M. Gray Collection, Box List Part 2, Box 6, Folder 12; BGen Edwin H. Simmons Center for Marine Corps History, Quantico, VA; and Gerald H. Turley, *The Journey of a Warrior*, 2nd ed., (Arlington, VA: Potomac Institute Press, 2018). Both labels are consistent with the overall spirit of understanding human decision making, organizational behavior, strategy, and leadership under conditions of ambiguity and change. Also embedded in our approach to clarifying the characteristics and implications of the new era are insights from the following: Herbert Simon, *The Sciences of the Artificial,* (Cambridge, MA: MIT Press, 1969); Paul K. Van Riper, "The Identification and Education of U.S. Army Strategic Thinkers," in *Exploring Strategic Thinking: Insights to Assess, Develop, and Retain Army Strategic Thinkers*, eds. Heather M.K. Wolters, Anna P. Grome, and Ryan M. Hinds, (Ft. Belvoir, VA: United States Army Research Institute for the Behavioral and Social Sciences, 2013); Robert

H. Scales, "Forecasting the Future of Warfare," *War on the Rocks*, (Online: April 2018), available at https://warontherocks.com/; and U.S. Congress*, House Committee on Armed Services (HASC) on 30 April 1991 concerning U.S. military reform after Operation DESERT STORM*, (Washington, DC: April 1991), available at https://www.c-span.org.

8. Gen David Berger specifically refers to an Information Age model of training and educating Marines in highlighting the importance of moving beyond the current industrial age model. In Table 1, we identify some key dimensions of the three different aforementioned eras which we hope lends greater specificity to the desired end state of a post-Industrial Age model and helps us understand some of the differences and kinds of skills leaders need in the post-Industrial Age.

9. The awareness PME needs to change in concert with (if not ahead of) the strategic environment was an important theme in the Goldwater-Nichols ACT 1986 reforms and subsequent Skelton Panel on Military Education. Twenty years later, in another report on PME, the HASC's Subcommittee on Oversight and Investigations reiterated this basic requirement. The subcommittee noted, "[T]he current PME system should be improved to meet the country's needs of today and tomorrow ... PME, therefore, must remain dynamic. It must respond to present needs and consistently anticipate those of the future. It must continuously evolve in order to imbue service members with the intellectual agility to assume expanded roles and to perform new missions in an ever dynamic and increasingly complicated security environment." House Committee on Armed Services, Subcommittee on Oversight and Investigations, "Another Crossroads? Professional Military Education Two Decades After the Goldwater-Nichols Act and the Skelton Panel," (Washington, DC: U.S. House of Representatives, 2010).

10. *Commandant's Planning Guidance.*

11. Kuhn introduced the notion of paradigms and Drucker subsequently identified discontinuities in societal changes. See Thomas S. Kuhn, The Structure of Scientific Revolutions, (Chicago, IL: University of Chicago Press: 1962); and Peter F. Drucker, *The Age of Discontinuity: Guidelines to Our Changing Society*, (New York, NY: Harper & Row, 1969).

12. The National Security Strategy and National Defense Strategy both suggest big power competition, terrorism, space, and cyberspace as examples of different types and domains of conflicts. We do not intend to suggest that situation or competition-specific skills and knowledge will become unnecessary, but rather that

decision makers need to acquire and discard them as they occur. This points to the need for the development of rapid learning skills for agile generalists and, thus, for our PME institutions to focus on teaching "how" to think, not "what" to think.

13. Simon makes the argument that it makes little sense one can make decisions that "maximize" in the presence of uncertainty, complexity, ambiguity, and limited rationality. Herb Simon, "A Behavioral Model of Rational Choice," *Quarterly Journal of Economics,* (Oxford, UK: Oxford University Press, February 1955). More recently, and in the context of military decision making, LtGen Paul K. Van Riper, elaborates the different types of problems one can encounter and the different kinds of approaches necessary to understand decision making. Importantly, the more ill-structured and complex the problems, the more we need to embrace a more holistic understanding of the dynamic forces shaping the problems. See LtGen Paul K. Van Riper, "The Science Behind the Art of Decision Making," (Todd Lecture Series, Norwich University, Northfield, VT, March 2014); The limitations of artificial intelligence are also worth noting in this context. Artificial intelligence can be spoofed and is still dependent on human creativity and judgment in its creation. Furthermore, in comparing the relevance of "kind" and "wicked" learning environments in an environment in which wicked problems increasingly proliferate, Epstein notes, "In a truly open-world problem devoid of rigid rules and reams of perfect historical data, artificial intelligence has been disastrous." David Epstein, *Range: Why Generalists Triumph in a Specialized World,* (New York, NY: Riverhead Books, 2019).

14. In this article, we focus on the learning aspects critical to nurturing future strategic leaders. There is also a complementary issue of having to break old ways of thinking and doing things, not only to nurture strategic leaders, but to properly leverage them thereafter. For example, after the initial invasion in Operation IRAQI FREEDOM, then-MajGen James N. Mattis noted staffs were so large they created their own friction. He advocated for reducing staff sizes to bring the core competency and ability to think of Marine officers and SNCOs to bear. This would ostensibly enable units to move faster and thus facilitate a more rapid, agile execution of civilian policymakers' intent. "Operation Iraqi Freedom," *C-SPAN*, (Online: July 2003).

15. LtGen Van Riper emphasizes the importance of reading broadly, avoiding the deleterious effects of being a closed system, and of sometimes actually doing different things. He learned these points from John Boyd and believes they help

us not only see different things, but also (and more importantly) see things differently. "The Science behind the Art of Decision Making."

16. Gen Gray encouraged open dialogue and emphasized the merit of ideas over rank by, for example, insisting his Marines remove their rank insignia during after-action reviews.

17. See, for instance, Staff, "The Immutable Nature of War," Public Broadcasting Service, (Online: April 2004), available at https://www.pbs.org. In linking his reflections on the more recent Millennium Challenge exercise to the lessons not learned from Vietnam, Van Riper observed, "What I saw in this particular exercise and the results from it were very similar to what I saw as a young second lieutenant back in the 1960s, when we were taught the systems engineering techniques that Mr. [Robert] McNamara [Secretary of Defense under Presidents John F. Kennedy and Lyndon Johnson] had implemented in the American military. We took those systems, which had good if not great utility in the acquisition of weapon systems, to the battlefield, where they were totally inappropriate. The computers in Saigon said we were winning the war, while out there in the rice paddies we knew … we weren't winning the war. Uncertainties make life difficult for the systems analyst, but this is so because the problem of intelligent behavior under uncertainty is really hard."

18. In his recent speech to the 2019 National Defense University graduating class, Gen Joseph Dunford, USMC(Ret) reinforced the predominance of people and their ability to think, even in the age of AI and alluring technology: "There will be no substitute for leadership that encourages critical thinking . . . There will be no substitute for leaders that recognize the implications of new ideas, new approaches and new technologies. There will be no substitute for leaders that take action to effect change." Jim Garamone, "Senior Officers Must Lead Change in an Uncertain World, Dunford says," U.S. Department of Defense, (Washington, DC: June 2019. These themes were central to John Boyd's 1991 reform testimony cited earlier.

19. Michael D. Wyly, "In Praise of Mavericks: A True Professional Will Strive to Do Something, Not Be Someone," *Armed Forces Journal*, (Washington, DC: July 2008).

USMC