

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

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1. REPORT DATE (DD-MM-YYYY) 12-MAY-2023		2. REPORT TYPE FINAL		3. DATES COVERED (From - To) N/A	
4. TITLE AND SUBTITLE Learning to Think - Thinking to Learn: Metacognition A Nascent Skill and Competitive Advantage for National Security				5a. CONTRACT NUMBER N/A	
				5b. GRANT NUMBER N/A	
				5c. PROGRAM ELEMENT NUMBER N/A	
6. AUTHOR(S) Paul W. Nickell				5d. PROJECT NUMBER N/A	
				5e. TASK NUMBER N/A	
				5f. WORK UNIT NUMBER N/A	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) Writing & Teaching Excellence Center Naval War College 686 Cushing Road Newport, RI 02841-1207				8. PERFORMING ORGANIZATION REPORT NUMBER N/A	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A				10. SPONSOR/MONITOR'S ACRONYM(S) N/A	
				11. SPONSOR/MONITOR'S REPORT NUMBER(S) N/A	
12. DISTRIBUTION / AVAILABILITY STATEMENT Distribution Statement A: Approved for public release; Distribution is unlimited.					
13. SUPPLEMENTARY NOTES A paper submitted to the faculty of the NWC in partial satisfaction of the requirements of the curriculum. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.					
14. ABSTRACT Experience is a byproduct of individual education applied in learning and thinking environments; however, reliance upon experience alone disregards that formal academic learning diminishes over time. U.S achieved Cold War successes due to the resilience of our national instruments of power. Alternately, engagements since point toward an increasingly complex problem set. Assured victory in any future challenge with revisionist or aggressive actors like the People's Republic of China or the Russian Federation will require a change in the way we think. Given the complex national security environment and its associated decision-making milieu, leaders will benefit from three cognitive development areas: cognitive bias awareness, critical inquiry, and conceptual decision frameworks. Most significant is the effort towards bias awareness, understanding how individual beliefs, values, and vision affect the interpretations of information, sense-making, and time. Though no instrument of national power or leader can design, assess, or restructure national security strategy alone, the work done in this ecosystem starts with a relentless pursuit of understanding, a metacognitive investigation that will offer winning options and policy pathways.					
15. SUBJECT TERMS (Key words) Metacognition; Decision Science; Learning Organization; Thinking; Learning; National Security					
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT N/A	18. NUMBER OF PAGES 19	19a. NAME OF RESPONSIBLE PERSON Director, Writing Center
a. REPORT UNCLASSIFIED	b. ABSTRACT UNCLASSIFIED	c. THIS PAGE UNCLASSIFIED			19b. TELEPHONE NUMBER (include area code) 401-841-6499

**Learning to Think – Thinking to Learn: Metacognition
A Nascent Learning Skill and Hidden Competitive Advantage for National Security**



Knowledge is a big subject; Ignorance is a bigger one.

– Stuart Feinstein

Prologue

The United States (U.S.) confronts a changing International Security Environment (ISE) not faced since the 2001 World Trade Center attack. There is an expectation that ISE Policymakers make the best decisions regarding national security, from humanitarian crises response to waging armed conflict, but what informs the *best* decision? Metacognition, sans scientific jargon, exists as thinking about thinking.¹ Shaped by experiences and relationships, thinking forms individual perspectives. However, a single view and expertise alone cannot grapple with the unpredictable futures that national security practitioners face. As Andrew Marshall commented, "Any notion that you know what's going to happen, I think, is not going to work."²

¹ John H. Flavell, "Metacognition and Cognitive Monitoring: A New Area of Cognitive–Developmental Inquiry.," *American Psychologist* 34, no. 10 (October 1979): 906–11, <https://doi.org/10.1037/0003-066X.34.10.906>. ISE policymakers will benefit from a collaborative and cooperative approach across institutions to develop national security thinking and learning.

² *Albert and Roberta Wohlstetter's Nuclear-Age Writings and the Future of U.S. National Security*, 2012, https://www.youtube.com/watch?v=7Sonyg_CwGo.

Indeed, experience is a byproduct of individual education applied in learning and thinking environments. However, reliance upon experience disregards that formal academic learning diminishes over time.³ From the Cold War to the South China Sea, engagements over the past few decades illustrate an increasingly complex problem set. Challenges pervade future decisions regarding U.S. policy towards the People's Republic of China (PRC) or Russia with uncertainty and its associated risk. Acknowledging that national and military strategies will continue to be developed and executed within these complex and unpredictable environments, cognitively excellent policymakers are needed.

An Introduction to Thinking About Thinking

Given the complex national security environment and its associated decision-making milieu, leaders will benefit from three cognitive development areas: cognitive bias awareness, critical inquiry, and conceptual decision frameworks.⁴ Figure 1 describes a metacognitive path to develop the decision-making argued within this paper. Though no instrument of national power or leader can design, assess, or restructure national security strategy alone, the work done in this ecosystem starts with a relentless pursuit of *understanding* or an investigation into metacognition, which offers winning options and policy pathways. Within national security organizations, judgment and knowledge are the characteristics of understanding, with plans and policy decisions as evidence of that understanding. It affects communication, negotiation, and problem-solving but receives limited development, leading to suboptimal, or best available, decision-making.⁵ It is necessary to transform and develop cognitive practices that generate

³ Hermann Ebbinghaus, "Memory: A Contribution to Experimental Psychology," *Annals of Neurosciences* 20, no. 4 (October 1, 2013), <https://doi.org/10.5214/ans.0972.7531.200408>.

⁴ Adding to existing work, this thesis exists as an overall recommendation for development, and what follows is an explanation of such development. Future research should be considered for individual and institutional development implications. I can imagine a scenario where both are provided constructive feedback, mentoring, and coaching.

⁵ Flavell, "Metacognition and Cognitive Monitoring." Learning and Thinking is an individual and group activity, which is a required function of national security policymakers and teams. Learning serves to educate, providing the

refined understanding, cultivating abilities to learn and think critically in complex environments while simultaneously holding multiple opposing ideas.

Uncertainty and risk represent the amorphous relationships among the known, unknown, and unknowable within cognitive aspects of national security. In the context of unitary state actions, whether dealing with PRC in the South China Sea, European crises with Russian aggression, Middle East challenges like Syria and Afghanistan, or in the Global Commons, a primary objective for the U.S. should be to remain the principal partner of choice. Maintaining national security is a moral imperative of the government and its leaders, requiring thorough understanding and sound judgment. Optimizing decision-making and related outcomes at every level achieves broad-based integrated deterrence through all instruments of national power.⁶ Two concerns come to light: one, satisficing replaces optimal decision-making due to the cognitive limitations within bounded rationality, and two, integrated deterrence lacks alignment and awareness of interagency strategic visions.⁷ National security should reflect the executive branch's vision and goals specified by a shared understanding of legislative and interagency organizations that reduces the disparate misperceptions policymakers possess. The following model is a viable pathway to develop excellence in satisficing and national security policies.

foundation. Thinking builds upon that foundation, individually and through a network of interpersonal and organizational relationships. Interconnectedness generated across national security institutions is a secondary benefit to improving policymaker decision-making.

⁶ Joseph R. Biden, "2022 National Security Strategy" (The White House, October 2022).

⁷ Nikolas K. Gvosdev, Jessica D. Blankshain, and David A. Cooper, *Decision-Making in American Foreign Policy: Translating Theory into Practice* (Cambridge New York Port Melbourne New Delhi Singapore: Cambridge University Press, 2019). Ch. 4, p. 3

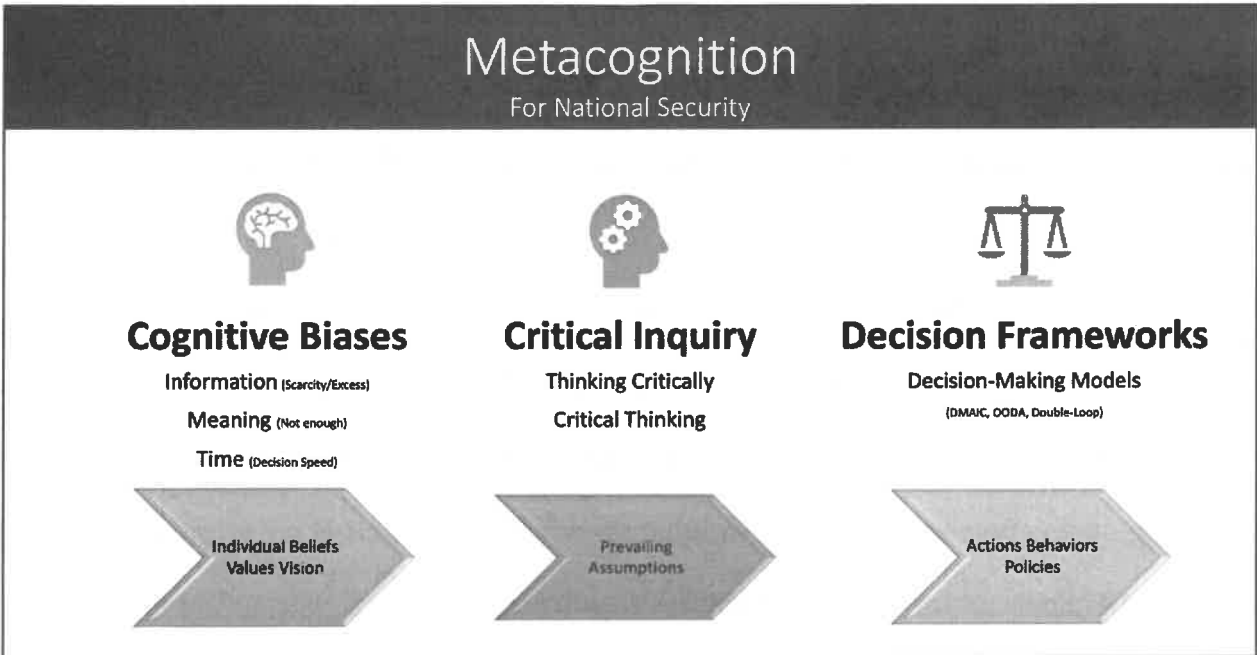


Figure 1: How metacognition builds from beliefs and biases, forming prevailing assumptions, which then guide actions, behaviors, and policies. If ignored, it results in degraded metacognitive outcomes and decision-making.

Cognitive Bias: The only thing more important than the truth?

Cognitive biases are mental heuristics developed by beliefs, experiences, and values that simplify complex tasks and generate perspectives.⁸ For example, China claims historical sovereignty over South China Sea islands and adjacent waters, while the U.S. and other nations continue Freedom of Navigation Operations (FONOPS) within those waters. Similarly, Russia justifies actions in Ukraine as an obligation to protect its historical citizens, while NATO-leaning Ukraine defends its sovereignty.⁹ Both perceive their actions justified, despite international opposition to their national characterization of law, but why? Where perception deals in facts – China violates international law in the South China Sea – perspective is concerned with the meaning derived from interpreting those facts – China claims actions are “justified.”¹⁰ Likewise,

⁸ Amos Tversky and Daniel Kahneman, “Judgement Under Uncertainty: Heuristics and Biases,” August 1973.

⁹ Jonathan Masters, “Ukraine: Conflict at the Crossroads of Europe and Russia,” Council on Foreign Relations, <https://www.cfr.org/background/ukraine-conflict-crossroads-europe-and-russia>.

¹⁰ “China Says South China Sea Land Reclamation ‘Justified,’” *BBC News*, September 10, 2014, sec. China, <https://www.bbc.com/news/world-asia-china-29139125>.

whether the human brain is the principal weapon on the battlefield or the essential tool in the boardroom, complex, adaptive challenges attack existing heuristics affecting a leader's wisdom and driving myopias of perspectives, learning, and thinking, all leading to flawed decision-making.¹¹

Intuition, by definition, represents humans' instinctive means of decision-making. Biased feelings and experiences are responsible for these unconscious, effortless *System 1* decisions.¹² Ideal for routine decisions, intuition is less suited for complex decisions, which challenge logical reasoning, such as how to counter Russian aggression below the means of physical force to compel a Ukrainian retreat. Intuition simplifies cognitive activities that generate meaning but sometimes get it wrong. One example that highlights the shortcomings of cognitive bias is the persistent use of military force to compel change in Afghanistan since 2003.

Despite compelling psychological research, practical applications are more substantive to national security practitioners, and the Cognitive Codex provides a tool developed from such research.¹³ Benson's Cognitive Codex framework depicts four complex mental challenges, 20 biased mental strategies, and 175 cognitive biases that enable leaders to build a broader understanding and function of factors challenging decision-making. This framework doesn't require an in-depth knowledge of its design to realize the contextual insights derived from its use through simple questioning techniques: sunk-Cost fallacy, survivorship bias, and duration neglect bias. Outcomes from high levels of investment, time, and life represented a poor understanding of Afghanistan; the loss of American lives was comparatively low compared to

¹¹ Ronald A. Heifetz, *Leadership without Easy Answers* (Cambridge, Mass: Belknap Press of Harvard University Press, 1994).

¹² Tversky and Kahneman, "Judgement Under Uncertainty: Heuristics and Biases"; Daniel Kahneman, *Thinking, Fast and Slow*, 1st pbk. ed (New York: Farrar, Straus and Giroux, 2013).

¹³ Buster Benson, "Cognitive Bias Cheat Sheet," Medium, September 1, 2022, <https://betterhumans.pub/cognitive-bias-cheat-sheet-55a472476b18>.

other conflicts; leaders reduced 20 years of conflict to three events: the world trade center attack, the invasion of Afghanistan, and the capture/kill of Osama bin Laden.¹⁴ Each time, prevailing beliefs of progress resulted in the decision to continue operations.

Indeed, with high information demand and low processing time, satisficing solutions can be refined using the Cognitive Codex as a ready-made classification aid that encourages cognitive bias learning and thinking. Individuals and teams can generalize decisions into four high-level challenges: Too much information, not enough meaning, the need to act fast, and what we should remember.¹⁵ Through this cognitive edification, a discerning leader will better recognize biases to which they or their teams may be susceptible. Subsequently, these metacognition practitioners will heighten self-awareness and engage in more thoughtful and deliberate *System 2* decision-making.¹⁶ Hypothetically, China will lambast American involvement in the South China Sea, and the Nation will require policymakers to generate a response. Leaders build decision space and time, acknowledge their cognitive limitations, open themselves to considering alternative perspectives, and more holistically develop solutions representative of sound national interests.

Take, for example, the decisions to engage in proxy wars such as Vietnam, to redeploy Marines in Beirut, or to overextend military operations in Afghanistan; it is doubtful leaders made those choices with ill intentions. More particularly, though, these were time-sensitive decisions that suffered from a scarcity of accurate information on internal operations or leaders' intentions while also lacking appropriate meaning of those situations. Did the United States simplify the probabilities of victory in Vietnam? Were policymakers overconfident by lessons

¹⁴ Carter Malkasian, "Why Didn't We Leave Afghanistan Before Now? A Fear That Presidents Could Not Ignore," *Time*, September 19, 2021, <https://time.com/6095878/afghanistan-america-departure/>.

¹⁵ Benson, "Cognitive Bias Cheat Sheet."

¹⁶ Tversky and Kahneman, "Judgement Under Uncertainty: Heuristics and Biases."

learned in Vietnam that Beirut threats were over-generalized? Does American patriotism and faith in the military result in irrational responses and decisions like President Biden's stated obligation to hunt down the airport attackers from Kabul?¹⁷ The imperfect nature of humanity leads to poor or suboptimal decisions that are likely inexplicable from the future observers' perspective.

National security and interests will benefit from a more profound comprehension of cognitive biases' influences and effects on understanding, judgment, and collaboration, reducing the likelihood of negative consequences from policymakers' limited rationality. However, a significant challenge to enhancing learning and thinking about biases' influence on decision-making deals with a contest between uncertainty and certainty or threats and rewards. The Status, Certainty, Autonomy, Relatedness, and Fairness (SCARF) model provides a real-time tool that improves self-awareness in personal and social interactions.¹⁸ Hardwired by DNA and designed to provide psychological safety, biases, and heuristics permeate the human brain synapses. This complex network represents the cognitive rodeo behind the scenes wrangling with Status, Certainty, Autonomy, Relatedness, and Fairness.

Moreover, cognitive biases assist the brain's instinctive aim to preserve the rewards or certainties of those five domains.¹⁹ Take the claim that American forces had the advantage in Vietnam because of military superiority over the North Vietnamese Army. National and military leaders erroneously generalized the status of American supremacy and certainty of victory, exacerbated by adding members or too much information to the scenario. Likewise, reducing

¹⁷ President Biden: "We Will Not Forgive. We Will Not Forget. We Will Hunt You down and Make You Pay.," 2021, <https://www.youtube.com/watch?v=CkgAZuUeAus>.

¹⁸ David Rock, "SCARF: A Brain-Based Model for Collaborating With and Influencing Others," *Neuroleadership Journal* 1 (2008): 1-9.

¹⁹ Rock.

decision space (time) or critical information has similar negative consequences to decision-making. Subsequently, *give me the U.S. response to Russian aggression in Ukraine in 10 minutes* is not a strategy to generate winning options or policies.

Cognitive bias awareness represents the most considerable portion of this metacognitive development model. It is not about eliminating bias but how to best operate or make decisions while aware of them. Learning about these impacts will contribute to developing critical thinking skills and decision-making analysis frameworks to avoid suboptimal and non-satisficing outcomes for national security. Lone-wolf institutional behaviors and values will be ineffective at achieving the core imperative of Integrated Deterrence, which is the demand for awareness and decision-effectiveness in a coordinated, networked, and innovative manner to preserve national interests.²⁰ Awareness is the first step to improved performance under biased influences; fortunately, federal agencies have made significant, iterative progress toward self-awareness and improvement through policies governing executive coaching, 360 evaluations, mentor partnerships, and academic education.²¹ The programs cover House and Senate elected officials, congressional staffers, and all interagency institutions.

Interestingly, not unique to American institutions – China has begun to invest in personnel development programs over the past decade; however, cultural resistance has resulted in limited success.²² This fact should not be perceived confidently that American competitive advantage in decision-making is assured. However, this learning and thinking methodology has many benefits, like diverse approaches toward growth mindsets that produce leaders who use

²⁰ Biden, “2022 National Security Strategy.”

²¹ “Policy, Data, Oversight - OPM.Gov,” U.S. Office of Personnel Management, accessed April 13, 2023, <https://www.opm.gov/policy-data-oversight/>.

²² “Developing Management in China | Amcham,” March 20, 2017, <https://www.amcham-shanghai.org/en/article/developing-management-china>.

fresh, innovative, and insightful methods to dig deeply into team goals that have been ineffective in the past. Likewise, they can overcome the shortcomings of biases and avoid suffering from *Assumptionitis* – "Everyone thinks and must think the way I do."²³ Lastly, collaborative, supportive teams develop skills that surface, diagnose, and overturn internal contradictions and assumptions about current challenges and relationships.

Critical Inquiry: Think Critically & Critically Think

The parity between the Soviet Union and America in the 1980s resulted in "flabby thinking" because of the overriding thought that nuclear war was impossible.²⁴ However, China's whole-of-state engagement against American security represents an existential threat to domestic enterprise, international diplomacy, and economic prosperity, which requires national security policymakers to solve adaptive challenges.²⁵ As previously discussed, biases present shortcomings in decision-making that compound these issues, and experience and intuition are unlikely to provide the best solutions. Therefore, decision-making must align with critical inquiry (CI) processes that predictively identify, thoughtfully assess, and deliberately solve complex challenges. This method of cognition allows individuals and teams to acquire additive, learned experience and intuition through active learning, which is a necessary pain.²⁶ Decisions regarding PRC actions require recalling situational and historical facts, distilling complex ideas

²³ Mie Augier, Sean F X Barrett, and William F III Mullen, "Assumptionitis in Strategy," *The Strategy Bridge*, June 21, 2021, <https://thestrategybridge.org/the-bridge/2021/6/21/assumptionitis-in-strategy>.

²⁴ Robert C McFarlane, "The Political Potential of Parity," *U.S. Naval Institute*, February 1979, <https://www.usni.org/magazines/proceedings/1979/february/political-potential-parity>.

²⁵ Christopher Wray, "The Threat Posed by the Chinese Government and the Chinese Communist Party to the Economic and National Security of the United States," Speech, Federal Bureau of Investigation, July 7, 2020, <https://www.fbi.gov/news/speeches/the-threat-posed-by-the-chinese-government-and-the-chinese-communist-party-to-the-economic-and-national-security-of-the-united-states>.

²⁶ Mortimer J. Adler, "Invitation to the Pain of Learning," *Journal of Educational Sociology* 14, no. 6 (February 1941): 358, <https://doi.org/10.2307/2262535>.

into tangible concepts, searching for connections amongst disparate intelligence elements, and determining potential solutions that survive international, domestic, and executive critique - which CI processes consider.

Despite this *Pain of Learning*, CI transforms decision-makers, contributing to a broad understanding of non-static, complex geopolitical, economic, and social perspectives. Furthermore, this follows natural learning models from data retention to analysis, resulting in creative, novel solutions.²⁷ For example, future involvement in supporting Ukraine against Russia will become increasingly complex, and while most thinking gravitates immediately to *what to do*, CI compels questioning: Why does it matter? Is there another perspective? Is there agreement/disagreement, and why? Why such certainty/uncertainty? This practice builds decision-making competence and confidence while building trust in national security processes.

Understanding how people make decisions and use their critical thinking skills, especially within the U.S. government, is limited due to the inadequacy of existing cognitive research on the relationship between sufficing and optimal decision-making. Thinking is complicated because of the uncertainty and risk within ill-structured problems.²⁸ Characteristic of high levels of decision-making uncertainty, gaps in the known, unknown, or unknowable grow, further increasing the complexity of those challenges. Within U.S. foreign policy, international relations, and national security, attention to individual and group thinking is often erroneously disregarded, which lends to the critical focus on the cognitive perspective's benefits of thinking and learning.²⁹ Developing predictive models for systems like population growth and unemployment provides insights applicable to international relations, national security, and defense strategy,

²⁷ Benjamin S Bloom, ed., *Taxonomy of Educational Objectives: The Classification of Educational Goals. Handbook 1: Cognitive Domain* (David McKay Company, Inc., 1956).

²⁸ Herbert A Simon, "The Structure of Ill Structured Problems," *Artificial Intelligence*, 1973.

²⁹ Gvosdev, Blankshain, and Cooper, *Decision-Making in American Foreign Policy*.

with decision-making models assisting policymakers in determining degrees of acceptability of current situations and potential foreign leaders. Historical case studies develop CI skills to determine if the current status quo is broadly acceptable; for example, is a particular foreign leader better for peace and stability, such as the effects of removing Saddam Hussein and Hugo Chavez, and judging a future without Vladimir Putin?

Another argument for the importance of thinking and learning deals with thinking within bounded rationality, termed satisficing.³⁰ Due to limited information scenarios, executive teams and interagency usually settle for satisficing solutions, weighing factors against the collection of more information, which leads to determining the best available solution for all parties, with costs in time and resources; however, learning and thinking can optimize these solutions by assigning utility and success probability to potential choices and implementing strategies to form a shared understanding. Learning comes from a lifelong pursuit of perceptible education and knowledge, referred to as understanding.³¹ Pursuing understanding is unlikely to be achieved by a checklist but instead by an arduous critical thinking process. This learning exists within *kind* learning environments, where decisions and expected outcomes align.³² Kind learning environments exist within routine national security council meetings, wargaming scenarios (across DIME institutions), and academia. Through critical thinking, decision-making outcomes span intuition, expertise, and experience, offering improved judgment, imagination, and innovative national security policy ideation.

³⁰ Herbert A. Simon, "Rational Choice and the Structure of the Environment," *Psychological Review* 63, no. 2 (1956): 129–38.

³¹ Plato and Allan Bloom, *The Republic of Plato*, 2nd ed (New York: Basic Books, 1991).

³² Robin M. Hogarth, Tomás Lejarraga, and Emre Soyer, "The Two Settings of Kind and Wicked Learning Environments," *Current Directions in Psychological Science* 24, no. 5 (October 2015): 379–85.

Conversely, most policymakers confront learning in a *wicked* environment with unclear rules and chaotic, imperceptible, and delayed feedback.³³ Visions of this environment are the moments after the USMC barracks attack in Beirut, the 2001 world-trade center attack, and unfolding actions on the ramp of Kabul's airfield during the American departure. Wicked learning environments also describe national security practitioners' daily operating environment that requires capabilities in learning from and without experience, akin to concepts of cognitive flexibility.³⁴ Evaluating an array of options in the wicked world before letting intuition reign is a developed skill set beyond bias awareness, demanding critical thinking and explorative learning. Another environment to transform the mind rests not in teaching people what to think but rather through active learning environments that focus everyone on how to think.³⁵ Active learning engages the mind's transformation through critical thinking and individual thinking.³⁶ Lastly, active learning encourages active minds to sustain cognitive growth, producing improved analysis because better-defined problems result in creative, innovative, and evaluated solutions.³⁷

Decisional Frameworks: Thinking and Learning Processes

A final aspect of this metacognitive development concerns decision-making models and cognitive frameworks that guide actions, behaviors, and policies. As expected, leaders must

³³ David J. Epstein, *Range: Why Generalists Triumph in a Specialized World* (New York: Riverhead Books, 2019).

³⁴ Epstein.

³⁵ Augier, Barrett, and Mullen, "Assumptionitis in Strategy."

³⁶ Scott Freeman et al., "Active Learning Increases Student Performance in Science, Engineering, and Mathematics," *Proceedings of the National Academy of Sciences* 111, no. 23 (June 10, 2014): 8410–15; Elli J. Theobald et al., "Active Learning Narrows Achievement Gaps for Underrepresented Students in Undergraduate Science, Technology, Engineering, and Math," *Proceedings of the National Academy of Sciences* 117, no. 12 (March 24, 2020): 6476–83.

³⁷ Paul W Nickell et al., "Learning to Get Real and Get Better: A Conversation with Learning Leaders | Center for International Maritime Security," January 30, 2023, <https://cimsec.org/learning-to-get-real-and-get-better-a-conversation-with-learning-leaders/>. Haphazard thinking and disregarded lessons learned will result in less optimal and meager solutions.

develop scalable and rational strategies to avoid the unfortunate outcomes seen with USMC Beirut deployments or the Kabul chaos during America's Afghanistan departure.³⁸ Foundational institutions like the Departments of State (DoS), Defense (DoD), and Treasury operate within functional areas. They are crucial in providing efficient and winning solutions for U.S. national interests in today's interconnected international society.³⁹ Indeed, their good health requires effective decision-making models shored to actions that enhance communication, nurture relationships, and mutually respect others' values with critical thinking and learning as its foundation. Lessons from history have taught decision-makers that the relationships engendered by these organizational and functional institutions are fragile.⁴⁰ Their good health requires continuous communication, nurturing, and mutual respect, with a core capability of critical thinking and learning as its foundation.

While the above are qualitative approaches, it is essential to acknowledge quantitative approaches characterized by measurable objectives and decision frameworks or processes as a prescriptive checklist; however, as SECDEF Gates commented, "when it comes to predicting the [future] since Vietnam, our record has been perfect. We have never gotten it right."⁴¹ His comment pinpoints that the first step for leaders then is to ask what needs to be solved. Personal expertise or experience can dangerously fool leaders, a trap avoided with conceptual decision-making frameworks such as DMAIC or John Boyd's OODA loop.⁴² Another approach is double-loop learning, which captures the challenges of defining problems properly, followed by

³⁸ Strategy development calls for collaborative, evidence-based, data-driven approaches that involve a continuous cycle of disciplined analysis and synthesis of the environment.

³⁹ "Key Concepts of Libertarianism | Cato Institute," April 12, 2019, <https://www.cato.org/commentary/key-concepts-libertarianism>.

⁴⁰ Gvosdev, Blankshain, and Cooper, *Decision-Making in American Foreign Policy*. p.178

⁴¹ Micah Zenko, "100% Right 0% of the Time," *Foreign Policy* (blog), October 16, 2012, <https://foreignpolicy.com/2012/10/16/100-right-0-of-the-time/>.

⁴² Chet Richards and J Addams, "Boyd's OODA Loop (It's Not What You Think)," 2012.

structuring solutions toward the source of the problem.⁴³ If thinking and learning are hard for the individual, teaching thinking and learning as a leader is more challenging, highlighting the requirement to develop critical thinking processes.

DMAIC, popularized through the Six Sigma process within the federal government, provides a structured framework for creative problem-solving. The iterative, data-driven strategy is *Define, Measure, Analyze, Improve, and Control*.⁴⁴ This process enables teams to explore current assumptions and identify current process inefficiencies, which provide policymakers with refined, informed options for future decisions. Leaders can use this process to determine policies and approaches to solve current sexual assault challenges. *What is the problem, what are the metrics, and what does continuous improvement look like* – all this relies on the team's experiences, plus leaders' willingness to challenge prevailing assumptions. If not, decision-makers will not solve existential threats like sexual violence. Indeed, every answer begets another question to answer, and this process endures until satisfied.⁴⁵

The OODA loop's design defeats adversaries from the cockpit to boardrooms by "out-deciding" them.⁴⁶ Do not mistake the OODA loop as only a fighter pilot's tactical aid, oversimplifying *Observe, Orient, Decide, and Act* as maneuvers. On the contrary, it entails disciplined learning and deliberate thinking to understand and lead through any challenge.⁴⁷ OODA-loop flows through a continuous process that addresses new challenges, starting with insights from unfolding circumstances, stakeholder information, and foreign policy. However, orienting myriad perspectives is more complex and conflicts with institutional DNA, unfamiliar

⁴³ Chris Argyris, "Teaching Smart People How to Learn," *Harvard Business Review* 4, no. 2 (1991).

⁴⁴ "Get Real, Get Better," United States Navy, October 2022, <https://www.navy.mil/Press-Office/News-Stories/Article/3241402/get-real-get-better/https%3A%2F%2Fwww.navy.mil%2FPress-Office%2FNews-Stories%2FArticle%2F3241402%2Fget-real-get-better%2F>.

⁴⁵ Immanuel Kant and James W. Ellington, *Prolegomena*, 2nd ed (Indianapolis: Hackett Pub, 2001).

⁴⁶ Richards and Addams, "Boyd's OODA Loop (It's Not What You Think)."

⁴⁷ Richards and Addams.

knowledge, immature analysis, and disparate expertise. Consider Decide and Act as test and evaluation steps, directing decision-makers to observe and orient again.

A final decision framework is double-loop learning, which illuminates the thinking behind the learning achieved by individuals and organizations solving technical and adaptive challenges.⁴⁸ Double-loop acknowledges failures of the thinking involved with decision-making. The implication for leaders is the willingness to presume that previous decisions may not be the best, counter to their identities of career success. However, in the complex nature of foreign policy and national security, people make mistakes, and learning from them will be even more critical to adjust policy implementation and plans. Double-loop learning would lead to more significant investment in current training programs to readdress sexual assault challenges like the repeatedly rising reports; however, leaders would also question if the training addressed the systemic causes and underlying assumptions of the current policies, which drives the high-level thinking and learning desired. For double-loop learning to succeed, organizations first need to create space for learning, which helps with the retention and application of learning.⁴⁹ Second, applying a learning mindset to teams, like a growth mindset, will identify prevailing assumptions.⁵⁰ Double-loop learning, like DMAIC and the OODA loop, provides a continuous framework for decision-making that wrestles against organizational norms, perspectives, and motives that cloud CI. They all require a particular comfort with failure.

Arguing Against Thinking and Learning?

⁴⁸ Argyris, "Teaching Smart People How to Learn."

⁴⁹ Epstein, *Range*.

⁵⁰ Tversky and Kahneman, "Judgement Under Uncertainty: Heuristics and Biases."

Effectively, the importance of thinking and learning to national security is nothing more than a description of a learning organization. Unfortunately, the hierarchal nature of today's national security institutions is control driven and oriented towards status quo performance and behaviors.⁵¹ This inflexible environment is a legitimate justification considering the effectiveness of an organization usually disregards rewards for creative ideas or out-of-box thinking. Instead, most reward the value drivers of efficiency, timeliness, consistency, and uniformity; conversely, thinking and learning encourage the opposite with innovative, transformative, and agile ideation.⁵² Another critique of thinking and learning across the national security sector is the overly optimistic tenor that ignores intra-organizational cultures and heritage, such as the relationships between agencies like the DoS and DoD.⁵³

All this is to say that thinking and learning lead to problem admiration instead of problem resolution. However, most of those arguments rest on too prescriptive a definition for learning organizations. Indeed, a central claim of learning organizations is continuous improvement in all aspects, to included decision-making; therefore, it follows that a commitment to thinking and learning is a commitment to national security.⁵⁴ Returning to metacognition theory, individuals, teams, and organizations exercise agility in their thinking and learning, thus maximizing the benefits of strategic thinking and decision-making. Metacognitive practice requires leaders to encourage learning and (diverse) thinking while creating a structure so everyone thrives in that environment.⁵⁵ Characterized as a rigid, disciplined, fighting force of grunts, the Marine Corps,

⁵¹ Gill Robinson Hickman, ed., *Leading Organizations: Perspectives for a New Era* (Thousand Oaks, Calif: Sage Publications, 1998).

⁵² Kim S. Cameron and Robert E. Quinn, *Diagnosing and Changing Organizational Culture: Based on the Competing Values Framework*, Third edition (San Francisco, CA: Jossey-Bass, 2011).

⁵³ Thomas Garavan, "The Learning Organization: A Review and Evaluation," *The Learning Organization* 4, no. 1 (1997): 18–29.

⁵⁴ David A. Garvin, "Building a Learning Organization," *Harvard Business Review*, August 1993, <https://hbr.org/1993/07/building-a-learning-organization>.

⁵⁵ Garavan, "The Learning Organization: A Review and Evaluation."

unsurprisingly to some, is thriving through transformation, encouraging learning and thinking. Under General Al Gray, 29th USMC Commandant, the Marine Corps began its transformation with a doctrinal publication outlining its philosophy and competitive advantage, FMFM-1 *Warfighting*, later accompanied by MCDP-7 *Learning*, which contributed to a focus on each Marine's education as the centerpiece of the Corps' sustained competitive advantage.⁵⁶

Conclusion

Ralph Waldo Emerson said, “There is properly no history, only biography.” Therefore, national security policy represents the biographical decisions of leaders, who, in retrospect, were imbalanced by data over judgment. “We’re pretty lousy at predicting where we’ll go;” “We have never gotten it right;” “I have been a terrible prophet” – A tragic dose of realism from past national security leaders, ADM Mullen, Secretary Gates, and SECDEF Mattis.⁵⁷ It would be foolish to think the benefits of American might of the past several decades will persist without a strategic shift in how policymakers understand overwhelming data and generate future security decisions. Clear-eyed leaders can grasp the importance of transforming cognitive practices by cultivating three cognitive development areas: cognitive bias awareness, critical inquiry, and conceptual decision frameworks for the complex national security environment.

Moreover, how the U.S. remains the number one partner of choice in Asia or becomes number two behind China depends on the decisions and their associated successes. It will not be the result of diplomacy or military efforts alone, but rather a whole of government approach that can develop inclusive relationships with consideration of internal and external stakeholders to

⁵⁶ Sean F X Barrett, Mie Augier, and William F III Mullen, “Sustaining Our Competitive Advantage, Thinking Is Competing,” 2021.

⁵⁷ Zenko, “100% Right 0% of the Time.”

each Nation. Additionally, China believes they are in a zero-sum game with the United States. Indeed, though U.S. national security policy towards PRC is not a containment strategy, policymakers have been unable to convince China otherwise.

Information, knowledge, and sense-making are standards of an organization or leader that supports and engages in learning and thinking encapsulated by the pursuit of understanding. Such pursuit is the obligation of learning and thinking individuals to evaluate and measure confidence in past, present, or future decisions while remaining aware of biased influences. One truth is that, given the uncertainty and complexity of international relations, leaders at all government levels who cannot process uncertainty or crisis, regardless of the disparate levels of clear and concise information, is a losing proposition. It becomes vital for leaders to create a culture that values continuous learning and provides the structure that encourages teams to challenge their assumptions, nurture creative ideas, and acquire and transfer knowledge across and through institutional borders.⁵⁸ The goal should not be contentment with satisficing solutions but rather acknowledging the power of learning and thinking inside teams and organizations to achieve success intentionally and collaboratively.⁵⁹ Ultimately, this inculcated learning and critical thinking practice will create systemic problem-solving, novel experimentation to challenges, and accelerate national security learning, growth, and development outcomes.

⁵⁸ Safi Bahcall, *Loonshots: How to Nurture the Crazy Ideas That Win Wars, Cure Diseases, and Transform Industries*, First edition (New York: St. Martin's Press, 2019).

⁵⁹ Liz Cavallaro and William J. Nault, "Cultivating a Learning Culture in the US Navy," *The Learning Organization* 28, no. 3 (January 1, 2020): 298–315, <https://doi.org/10.1108/TLO-12-2019-0176>.