

War-Gaming

By Captain Aleksandrs (Aleks) V. Schuler

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War-gaming needs a return to form in the U.S. Army. At the battalion and brigade levels, field grade officers might currently be the only authorities on how to properly analyze courses of action (COAs) before execution, or “war-gaming.” Further, of all the steps in the military decision-making process, COA analysis is the least understood. It is seldom exercised across the Army, forfeiting developmental opportunities for officers and non-commissioned officers alike. This article presents a vision for a standardized war game designed for the operational force and the supporting professional military education (PME) framework that would be used to develop and cultivate Army leaders.

Purpose of War-Gaming

From step drills on a soccer field to combined arms rehearsals, we seek low-threat, easily resourced training opportunities that give units a chance to practice. While useful for discrete training outcomes, one weakness of these approaches is the reliance on predetermined outcomes, in which reacting a certain way in a certain situation is always correct. War-gaming, on the other hand, stresses and tests leaders and their plans through the inclusion of *chance* and *thinking players*.

Chance is manifested through possibilities that—ideally—are based on historical observations. It’s important to explore even bad outcomes, including sprained ankles, Class III oil leaks, weapons jams, misunderstood orders, or anything else that may hamper the execution of an operation. Chance introduces situations that the plan may not have considered and forces us to answer questions that otherwise would not have been asked.

Whereas chance sets unanticipated conditions, *thinking players* generate the important reactions. Thinking players provide an initial logic check for proposed COAs and situation templates from steps of the previous military decision-making process. This is especially important for “red hat” players who act as the enemy and seek to exploit weaknesses. While we most commonly think of the red-hat battalion or brigade intelligence staff officer opponents to our blue forces, we can also use thinking players to experiment with the reactions of civilian populations, local governments, allies, and even adjacent units.

History of Military War-Gaming

Military war-gaming has endured centuries of evolution. *Chess* and *Go* were two popular early strategic games played

against an adversary, but they lacked combat-related mechanics. *Kriegsspiel*, the first game to consider terrain and unit composition, was adopted by the Prussian Army in the 19th century, and it became the educational tool of choice for officers responsible for decision making using terrain, formations, and casualty rates based on conflicts occurring at that time in history.¹

War-gaming continued to progress in the United States, with war games taught in the Command and General Staff College in 1939 and the Louisiana Maneuvers in 1941² Even after additional advancements during the Cold War, however, a 1991 RAND Corporation study posited that the Department of Defense had “little interest in the substance of the models and validity of the lessons learned from using them” heading into the Gulf War.³

Today, digital warfighter exercises and live war games conducted at combat training centers provide additional opportunities to test staff systems, decision making, and warfighting. While these modern systems are significant, they are either aimed at training levels of command much higher than the battalion and brigade, or they are prohibitively resource intensive to repeat them multiple times a quarter needed to train a staff.

The Current Gap in COA Analysis

War-gaming has become a niche interest for Army leaders, with few touchpoints in PME. There is no standardized war game taught across the centers of excellence, although the U.S. Army Maneuver Center Captain’s Career Course has introduced its students to the *Force-on-Force* system. War-gaming is taught at Intermediate-Level Education, but only as an elective focused on educational gaming—not as it applies to COA analysis. As a result, military decision-making process war-gaming has led to ad-hoc systems and rules that are based on the hope that some staff member has an interest in war-gaming or has been lucky enough to have a good experience with it.

The Center for Army Lessons Learned published the *How to Master Wargaming* handbook in 2020,⁴ but *CTC Trends* bulletins since then still mention COA analysis as a skill set that needs improvement.

These critiques are about more than war-gaming in adherence to doctrine. These gaps also cause us to miss out on key analyses and important conversations such as degraded combat power, trickle-down impacts of changing supply demands, available casualty/medical evacuation assets, losses

of unique skills or qualifications (such as those of trained small, unmanned aircraft system operators), or the risk of compromised communications security.

These gaps are exacerbated by a lack of extant U.S. experience with fighting in large-scale combat operations. Where historically a veteran of a type of conflict would adjust or completely override game outcomes from experience, that authoritative perspective may be hard to find today. Where our doctrinal instruction on COA analysis is concerned, we have few references outside of the belt/avenue-in-depth/box methods described in Field Manual (FM) 5-0, *Planning and Orders Production*,⁵ to consult about how to approach the analysis. Further, I am unable to identify any casualty tables that have been designated as the baseline standard reference for staffs, and the Correlation of Forces and Means model circulating within the Command and General Staff College environs lacks a dedicated proponent to ensure that its updates align with evolving formations, advancements in technology, and insights from ongoing conflicts.⁶

The Vision

This article proposes a twofold approach to addressing the current COA gap: establish a standardized, enterprise-wide modular war game for battalion and brigade levels of execution and use PME to present that war game as an exercise in decision making.

In its barest form, the standardized war game should, in an hour, be capable of running a maneuver phase under tent and red lens and with minimal resources. At its most complex, the war game could consist of a day-long event in which warfighting functions across multiple domains are considered (with computer support, if needed). The recommended criteria for judging such a solution are speed, understandable results, and minimal resources.

Speed

As a part of my search for COA analysis tools, I experimented with playing distinct systems, including *AE-701* (detailed but cumbersome) and *Force-on-Force* (simple but fast). My experiences revealed a likely detail/speed tradeoff, exposing the conflict in choosing a game that was detailed enough to produce meaningful results but fast enough that a staff could run at least a key phase of an operation to support the military decision-making process.⁷ Fortunately, early in my Army career, I picked up on a key vocabulary word that would inspire a way forward: modularity.

Modularity—or mixing and matching components to address changing situations—of a war game is advantageous. A strictly maneuver-only plan with the most basic rules set may take only the smallest amount of time to game. The ability to then choose to add more modules (such as small, unmanned aircraft systems; obstacles; logistics; electronic warfare; and even space effects modules) can ultimately War-gaming has historically been an important, accessible, low-cost training tool that Army leaders could use to practice making better decisions faster, and it should play a more important role in COA analysis. deliver a game that answers

the questions most pertinent to that staff in exchange for additional time to run the game.

Understandable Results

There is a long history of war games, and war-gaming has its own vocabulary. While terms like *armor class* and *saves* have a particular meaning for those already exposed to various gaming communities, they do not necessarily translate well for others—and they may even create a usability barrier.⁸ A game that, as much as possible, makes use of doctrinally approved words and phrases for inputs and outputs lowers that barrier. For example, in some games, *speed* may be used as input to signify the number of tiles that a unit can move during a turn, but *rate of march* is actually referenced in doctrine, such as Army Techniques Publication (ATP) 3-21.18, *Foot Marches*.⁹ Likewise, outputs such as *damage* or subtracted *hit points* are difficult to describe outside of games that make use of those terms, but *combat power* or a *slant* provides results that can more readily be processed by a staff and rolled into summarized outcomes.

Minimal Resources

Computer-run games easily produce results that could meet the first two criteria mentioned. Computers are capable of quickly calculating a great deal of input (trading detail for speed) and producing results in discernable terms. However, I tend to shy away from computer-based solutions for the same reason that land navigation procedures are still taught using paper maps and protractors: These are—and should remain—technologically immaterial skills; their use forces us to understand why we got the result we did.

A war game that makes use of simple resources such as physical maps, acetate, and notebooks would be resistant to multidomain interference and would force hands-on understanding and implementation of the COA. Products already produced during the military decision-making process—such as a modified combined obstacle overlay or enemy situation template—are useful inputs. By incorporating only historically based battle outcomes (chance) and thinking players, the result is very close to a playable war game.

War-Gaming in PME

War-gaming can and should serve as a training tool that goes beyond elective interest. Just as other games are used for training pattern recognition, war-gaming can be used to teach officers and noncommissioned officers what patterns to look for before actual execution of operations and should be more thoroughly integrated into PME to close the experiential lap in large-scale combat operations.¹⁰ This is accomplished by speeding up the observe, orient, decide, and act (OODA) loop through tough classroom lessons.¹¹ Effective classroom games can produce leaders who remember to look out for electronic warfare attacks, synchronize psychological operations effects, or implement any number of other lessons learned out-of-contact. COA analysis war-gaming that is taught and practiced throughout Army PME can even ease transitions in strategic focus (such as the move from the Global War on Terrorism to large-scale combat operations in

the Indo-Pacific) by simulating theater-specific challenges, thereby helping to achieve intellectual overmatch with reference to our adversaries.¹² Practicing and streamlining tactical decision making can be supported across our PME suite by developing two populations: participants and umpires.

Participant Role

Participants would be responsible for execution of the war game. They should understand the rules of the game and provide branch-based technical expertise in war-game modules; for example, a Signal Branch noncommissioned officer could adjust the range of a line-of-sight communication platform based on the terrain. Participants would roll the dice, consult tables, and use the operational graphics of the given COA to execute the game. In so doing, they would not only master their “branch” or “modules” but also learn about multiple modules—and, when executed iteratively with increasing levels of complexity, would realize their direct impacts on the mission. The appropriate courses for the introduction and instruction of this level of involvement are the Captain’s Career Course, the Advanced Leader Course, and the Battle Staff Course.

Umpire Role

Umpires would be responsible for knowing how to navigate the rules of the war game and making (to the best of their ability) impartial decisions. Furthermore, modular war-game umpires would need to be trained to understand the level of detail supported based on the time and appetite available for execution. If there is only enough time to game one phase of a maneuver fight, then the game should be simplified. If outpacing logistics trains is the commander’s primary concern, then logistics modules should be added. Intermediate-Level Education and the Senior Leader Course are PME opportunities for teaching war-gaming from the perspective of an umpire. In both environments, students could build on an extant understanding of the war game and be taught to make adjustments to the game, address operational requirements, and adjust adjudication tables to better estimate the impact of a new technique or technology. Articles like “Revisiting RAND’s Russia Wargames After the Invasion of Ukraine,” which presents a comparison of Russian offensive war games before and after its invasion of Ukraine, can also serve as salient teaching tools.¹³

Other Perspectives

Despite feedback from the Center for Army Lessons Learned,¹⁴ operational units may be satisfactorily executing COA analysis for their commanders—even if in flawed forms. I’ve observed little call to action for war-gaming from senior leaders, and the absence of a standardized game may allow staffs to create the rules and considerations they believe to be important without the need for additional training (perhaps in ways that may simply be difficult to capture in a rulebook). The injection of a new prescribed war game may just be too cumbersome for the staff.

Automation may also begin to play a bigger part in COA analysis and the military decision-making process. An article entitled “Artificial Intelligence for Wargaming and Modeling” explores the use of artificial intelligence in

war-gaming and explains that it may provide support tools for commanders, offer insight into the decisions of other players, and reduce the difficulty of integrating separate “modules” that account for complex systems, resulting in more complete analyses.¹⁵

Conclusion

Flexible, intellectually agile leaders are needed to navigate the uncertainty of the large-scale combat operations fight. War-gaming has historically been an important, accessible, low-cost training tool that Army leaders could use to practice making better decisions faster, and it should play a more important role in COA analysis. A structured, widely adopted war game that is practiced in PME—but can be streamlined for use by the operational force in the military decision-making process—is a key opportunity for maintaining mentally agile and capable leaders for tomorrow’s Army.

Endnotes:



¹Matthew B. Caffrey, Jr, *On Wargaming*, Naval War College Press, Newport, Rhode Island, January 2019.

²Ibid.

³Paul K. Davis and Don Blumenthal, “The Base of Sand Problem: A White Paper on the State of Military Combat Modeling,” *RAND Corporation*, Santa Monica, California, January 1991.

⁴*How to Master Wargaming*, Center for Army Lessons Learned, Fort Leavenworth, Kansas, 2020.

⁵FM 5-0, *Planning and Orders Production*, 4 November 2024.

⁶*How to Master Wargaming*.

⁷Sebastian J. Bae, *Forging Wargamers*, Marine Corps University Press, Quantico, Virginia, 2022.

⁸Ralph Koster, *A Theory of Fun for Game Design*, O’Reilly Media, Cambridge, Massachusetts, 6 November 2004.

⁹ATP 3-21.18, *Foot Marches*, 13 April 2022.

¹⁰Koster.

¹¹Caffrey.

¹²Bae.

¹³Gian Gentile et al., “Revisiting RAND’s Russia Wargames After the Invasion of Ukraine,” *RAND Corporation*, Santa Monica, California, 21 November 2023.

¹⁴*How to Master Wargaming*.

¹⁵Paul K. Davis and Paul Bracken, “Artificial Intelligence for Wargaming and Modeling,” *Journal of Defense Modeling and Simulation: Application, Methodology, Technology*, 8 February 2022, pp. 1–16, <https://www.researchgate.net/publication/358453111_Artificial_intelligence_for_wargaming_and_modeling>, accessed on 15 May 2025.

Captain Schuler is a Regular Army space operations officer for the U.S. Space Command, Peterson Space Force Base, Colorado. He was an instructor for the U.S. Army Training and Doctrine Command Proponent Office–Protection, Fort Leonard Wood, Missouri, when this article was written. He is a casual war-gamer on commercial and government digital and tabletop systems. Captain Schuler holds a bachelor’s degree in civil engineering from George Mason University, Fairfax, Virginia, and a master’s degree in graphic information systems from Johns Hopkins University, Baltimore, Maryland.