Strength in Knowledge

The Warrant Officer Journal

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Strength in Knowledge: The Warrant Officer Journal

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Commandant's Corner

Colonel Kevin E. McHugh, Commandant, USAWOCC

Welcome back to another issue of Strengh in Knowledge, a publication written and produced by Warrant Officer's that serves to educate and inform the Army about complex problems (and often their solutions) as seen through the unique lens of the technical expert, leader, and advisor to Commander's at all echelons.

For this issue, I would like to acknowledge the hard work of so many that continue to improve how we, a part of the Army's educational enterprise, educate and train our warrant officer cohort. First, thanks to the USAWOCC Commended for the application of the temperature to believe the

the USAWOCC Commands, faculty and staff that continue to balance the



Picture: COL Kevin E. McHugh

work of daily instruction combined with curriculum development to create and ensure a progressive and sequential education tailored to deliver officers who are able to meet the demands of future warfare. On 1 OCT 2024, the team delivered a critical update to the Warrant Officer Candidate Program building on the major effort last year, labled WOCS 20.1. This update increases learning opportunties through focused study sessions and the application of leader development through the formalization of the Candidate Led Strategy.

Within WO Professional Military Education and with the approval of the CG, Combined Arms Center, USAWOCC sunset the 18 hour distance learning requirment for WOAC Phase 1 in preparation for the FY 26 release of the modernized warrant officer intermediate course (WOIC). In addition, the team continues development of the future warrant officer advanced and senior courses scheduled for implementation in FY26. Its important to highlight and thank the staff, instructors and developers at the various Centers of Excellence (COE), remembering that effective warrant officers are the direct result of the deliberate "pariing" of common core education delivered by USAWOCC and the techical training delivered by the COEs. As we close in on FY26 implementation of the warrant officer modernized educational continuum started over three years ago, the Combined Arms Center is set to host a series of final planning sessions to ensure the alignment of the warrant officer educational curricluums across the enterprise. Finally, a sincere thanks to the Harding Project Team and USAWOCC's own Mr. Jim Steddum (Strength in Knowledge Lead editor/writer and Academic Lead) for the hard work and accomplishment of this journal being officially recognized as a professional bulletin within the United States Army, #1918. Well done!!! As we all seek continuous improvement through strength in knowledge...enjoy the read!

Strength in Knowledge!



Deputy Commandant's Corner - Mentorship Part 2

CW5 Stephen Napoli, Deputy Commandant, USAWOCC

Last quarter's mentorship article in *Strength in Knowledge* laid a potential foundation for what all of us should look for in a mentor. That same foundation should be used as we self-assess our abilities to be an effective mentor. This quarter we build on that foundation with the "Can we summarize the characteristics of a quality mentor in a few pages over the course of a few editions of Strength in Knowledge? Certainly not to everyone's satisfaction. And not everyone will agree with the assertions made in this series. Those two statements create the value of having multiple mentors—to provide different insights from different experience



Picture: CW5 Stephen Napoli

where neither is necessarily right or wrong. And informed discourse makes us all better.

On the heels of being humbled by being selected for promotion to CW5 in 2014, I was asked a question by a CW2 on a flight line in northern Afghanistan. The question was a good one, but the answer I provided embarrasses me to this day. While success should not be measured only by a promotion or by a pay raise, he asked me about how I have achieved success as a warrant officer—meaning being selected to be a CW5. How did I get there? Great question. It was a fantasy to be selected, and it was certainly not an expectation. But there I was being asked about the path and decisions I had made to get to where I was headed. My answer to his question was, "You have to work hard, and you have to sacrifice." It is a great answer for many professions, from professional sports teams to corporate work. That answer resonates well with many Soldiers and leaders that have been the beneficiary of fortunate promotions. Yet, I was embarrassed by that answer . . . because we all work hard, and we all sacrifice. Those are key requirements just to serve in the Profession of Arms. It was the "easy, Army answer." It did not require any thought, insight, or wisdom. It was not specific. And I was embarrassed that I failed to take the opportunity to offer more. That embarrassment changed my life and my approach to leading, mentoring, serving, and even parenting.

Fast forward to my promotion ceremony to CW5 that occurred in November of 2014. I had been reflecting on the question (and answer) for months. I had a captive audience for the ceremony—to include the CW2 that had asked the question. I seized the opportunity to provide a better answer. After sharing the story about the question, I provided the following answer: "CARE." Before I even knew how to articulate it, I had been setting goals to be Credible, Approachable, & Relevant Everyday (CARE). It was not a deliberate goal when my Army adventures began. It just continued to evolve until being revealed through being asked a question and the exploration for a better answer. It might seem like a simple "catch phrase." For me, it was a more tangible and substantive answer. It was the best recipe for success that I could connect to my own experiences. Have I successfully employed the CARE model all of the time? Absolutely not. It is a goal where consistency can be elusive.

I share that story to share this story: I was recently asked what to look for in a mentor. I had never been asked that question before, and again I felt challenged in the moment by what the best answer might be. I immediately retreated to the learning experience from the story about a generic answer to a good question. This is where I found that "CARE" is a model that applies across multiple ecosystems. And I will attempt to capture that application within the context of mentorship. We are all certainly capable of using the words "credible," "approachable," "elevant," and "everyday" adequately in conversation. Nevertheless, we are going to dive into each one with upcoming articles as they apply to mentorship—and indirectly applied to other life situations. Until then, continue to uphold the professional obligation of being lifelong learners as described in ADP 6-22, where we actively offer and accept coaching, counseling, and mentorship.



Figure 1: The Napoli CARE Model

Resident Professional Military Education at the US Army Warrant Officer Career College

Mr. Benjamin Valentine, Director of Education and Training, USAWOCC

In today's complex and rapidly changing global environment, the role of Warrant Officers as integrators, communicators, operators, leaders, and advisors (ICOLA) has never been more critical. The US Army Warrant Officer Career College (USAWOCC) conducts common core professional military education (PME) for warrant officers throughout their careers. Currently, USAWOCC teaches the Warrant Officer Intermediate Level Education (WOILE) and the Warrant Officer Senior Service Education



(WOSSE) in resident and limited synchronous virtual iterations. These Picture: Mr. Benjamin Valentine programs prepare officers for assignment to CW3/CW4 and CW4/CW5 positions, respectively, to enhance warfighting lethality, deliver ready combat formations, continuously transform the organization, and steward the Army profession. In the future, look for USAWOCC's new, modernized PME scheduled for fiscal year (FY) 2026.

Throughout their careers, Warrant Officers must be able to integrate their technical expertise in support of their commander and organization. They must be able to apply the fundamentals of Army and joint planning to fulfill their role as a member of an Army staff, joint, and/or multinational team, requiring a deep understanding of the Army's planning processes and the ability to integrate them to achieve mission success. Warrant Officers must also be able to communicate critical information clearly, persuasively, and candidly (verbally and written) to gain and provide shared understanding of problems and solutions. This requires excellent communication skills and the ability to build relationships with diverse stakeholders.

Warrant Officers operate in unstructured and complex environments and develop innovative strategies to support senior leaders in achieving mission, vision, and goals. This requires a deep understanding of the operational environment and the ability to evaluate how world events, global trends, geopolitical threats, and cultural considerations affect military planning and operations. Warrant Officers must be able to analyze and interpret operational environments and variables to inform military judgement and senior leader decisions in support of Army operations.

As leaders, Warrant Officers must be able to develop Soldiers, Army Civilians, and contractors to effectively build and lead teams, requiring solid understanding of mission command processes and the ability to apply them to support organizational operations and readiness. Warrant Officers also need to provide leaders with sound advice related to systems integration to ensure organizational readiness.

Warrant Officers are technical advisers and must be able to provide leaders with sound advice related to systems integration to ensure organizational readiness. They must understand the principles of the Army's force management model and be able to apply them to support operational readiness. Additionally, warrant officers must also be able to analyze and interpret operational environments and variables to inform military judgement and senior leader decisions in support of Army operations.

USAWOCC teaches the WOILE course in residence at Fort Novosel, Alabama or, students may opt to enroll in one of the four synchronous virtual iterations of the course. The WOILE program provides officers the knowledge, skills, and behaviors (KSBs) required for assignment to CW3/CW4 positions at the operational level where they serve as advisors to commanders and staffs. The program focuses on applying the fundamentals of Army and joint planning to fulfill the role as a member of an Army staff,

joint and/or multinational team. Officers will learn to communicate critical information more clearly, persuasively, and candidly to gain and provide shared understanding of problems and solutions. The program also provides officers with the skills to develop innovative strategies to support senior leaders in achieving mission, vision, and goals in an unstructured and complex environment. Officers will learn to analyze how world events, global trends, geopolitical threats, and cultural considerations affect military planning and operations. The WOILE program also provides officers with the knowledge and skills to apply the concepts of joint operations, Army readiness, and operational art and design. Officers will learn to analyze the development of U.S. national policy and its effects on Army readiness and the principles of the Army's force management model.

USAWOCC faculty and staff from the three academic departments (Department of Strategy and Doctrine, Department of Leadership and Management, and Department of Military History) work together to facilitate the program to ensure students meet the course objectives. In its current form, 57% of the course is leadership and management, 27% is Strategy and Doctrine, and 16% is Military History and provides field grade warrant officers a professional common core education to further develop KSBs and attributes to effectively integrate their technical expertise in support of their commanders and organizational missions to achieve decisive results at the operational level.

The WOSSE program is offered in residence at Fort Novosel, Alabama and is designed to prepare officers for assignment to CW4/CW5 positions at the strategic level as advisors to commanders and staffs and provides them with the senior level education, knowledge, and influential leadership skills necessary to apply their technical expertise in support of leaders on strategic level joint, interagency, intergovernmental, and multinational (JIIM) organizations executing Unified Land Operations thru Decisive Action. The program builds on the KSBs acquired in WOILE and provides officers with the knowledge and skills to apply the concepts of joint operations, Army readiness, and operational art and design at the strategic level. Officers will learn to analyze the development of U.S. national policy and its effects on Army readiness and the principles of the Army's force management model. The WOSSE program also provides these warrant officers a professional common core education to further develop the attributes required to effectively integrate their technical expertise in support of their commanders and organizational missions to achieve decisive results at the strategic level. The course also provides the skills needed to conduct an effective battle analysis. Like WOILE, WOSSE is facilitated through a collaborative effort of the three USAWOCC academic departments with 45% of the course covering strategy and doctrine, 28% leadership and management, 16% military history, and the final 11% being a capstone exercise to pull everything together.

The current resident PME at USAWOCC further develops warrant officers in their roles as integrators, communicators, operators, leaders, and advisors to enhance warfighting lethality and deliver ready combat formations. These Warrant Officer Professional Development programs are specifically designed to prepare officers for these roles and provide them with the knowledge, skills, and behaviors required to be effective in a complex and rapidly changing global environment. USAWOCC, however, continues to improve its PME programs and is in the process of modernizing the current courses and adding an additional course to its menu of options. This effort will create a modernized educational experience that develops critical common core knowledge, skills, and behaviors necessary for Warrant Officers to succeed as system Integrators, effective Communicators, doctrinally based Operators, Leaders and Advisors thereby ensuring the success of the Army and Joint Force in any future operating environment. The new, modernized courses are scheduled to start in FY 26 and will be progressive and sequential throughout a warrant officer's career as well as be paired with Warrant Officer technical training conducted at the various Centers of Excellence. These course improvements will provide the Army of 2030 and beyond with Warrant Officer subject matter experts and leaders who are capable of winning on any battlefield.

The WOILE and WOSSE courses taught at USAWOCC are just two of the courses that make up the common core education for the Army's Warrant Officer Cohort that prepares them to enhance warfighting lethality, deliver ready combat formations, continuously transform the organization, and steward the Army profession. They are part of what makes USAWOCC a prestigious academic institution, recognized for its academic rigor and relevance, acknowledged for its institutional agility, and capable of educating Warrant Officers to perform their core competencies and win in any environment.

Editor's Notes

Jim Steddum, Managing Editor

Avid readers of *Strength in Knowledge* may notice distinct changes in this issue. First, on most importantly, the number 1918 on the front cover represents not only the year the Warrant Officer was officially recognized in the United States Army, but it now represents the number identifying the journal as a professional bulletin of the United States Army. Each issue of this journal will be submitted to the Office of the Secretary of the Army for authentication. And, the Library of Congress issued the the journal an International Standard Serial Number (ISSN) which is found on the second page. These seeming administrative details are a huge win for the Warrant Officer cohort, because the content will now be indexed and searchable as a professional journal.

The next issue will explain professional discourse and why Warrant Officers are good at it! The following issues will detail the gains experiences from Warrant Officer Education Modernization including a look at the new Warrant Officer Advaced Course, a primer for Warrant Officer data literacy, an all new Warrant Officer Senior Course, and more.

The Warrant Officer Career College looks forward to participation in the all new Line of Departure in late fall with many more opportunities for Warrant Officers to showcase their technical expertise and candid advice to the rest of the Army.



Everything Old is New Again: Defeating Counter-Unmanned Aerial Systems in the Next War

CW4 Jonas A. Moody, U.S. Army, Air Defense

Air raid sirens blared across cities throughout Israel late in the evening on April 13th, 2024. Israel and its Coalition allies braced for a massive aerial attack from Iran. Drones and missiles were fired from several locations across U.S. Central Command (USCENTCOM) as a "retaliatory strike" for a suspected Israeli attack on the Iranian consulate in Syria that killed two Iranian military commanders and six other Iranian nationals. The attack saw launch points from Iran, Iraq, Syria, and Yemen, illustrating the scope and capability of Iran and its proxy forces throughout the region. Iran's "Operation True Promise" consisted of more than 120 ballistic missiles, 30 cruise missiles, and of particular interest: drones (AI Jazeera Staff, 2024). The drone threat has pushed the Department of Defense (DoD) to act quickly and rush technological solutions to the field. Unfortunately, the rapid acquisition process has resulted in a "throw it at the wall and see what sticks" approach.

Drones, or Unmanned Aerial Systems (UAS) in military parlance, have already changed the face of the modern battlefield, and innovation in the field, both technological and tactical, is proceeding at a ferocious pace. Russia's incursion into Ukraine gave militaries worldwide an unprecedented opportunity to see these technologies employed in the crucible of combat (Thompson, 2024). In addition to the large-scale combat operations (LSCO) unfolding in Ukraine, UAS technology is also changing how the United States conducts counter-insurgency and stability operations across USCENTCOM. At the close of January 2024, three American Soldiers were killed and approximately 34 more were injured when an Iranian-backed militia attacked the Tower 22 outpost in Jordan with one-way attack (OWA) drones believed to be supplied by Iran (Miller, 2024). Unfortunately, this was not the only UAS attack against U.S. forces in the region, but it was the most successful. Frequent drone attacks and incursions on U.S. bases in the region have driven the Department of Defense to flood the theater with rapidly-fielded counter-UAS systems that employ both kinetic and non-kinetic effects. The proliferation of disaggregated systems, contract-driven maintenance programs, and an unfavorable ratio of costbenefit taxes in existing mission command networks will reduce readiness in LSCO.

Though there is no reasonable way to put a cost on human lives, one must consider the DoD's strategy in how it rolls out these defensive systems. The DoD's response to the emerging unmanned aerial systems (UAS) threat mirrors the disjointed response to the improvised explosive device threat (IED) during the Global War on Terror (GWOT). When IEDs became the threat du jour employed by our adversaries in Iraq and Afghanistan, the DoD rushed to moderate the effects of these low-cost, high-impact weapons and protect American lives. Due to the affordability and high availability of commercial UAS systems, we see a threat similar to the IED, only in the third dimension of the battlespace.

In 2006, the Pentagon created an organization to combat the emerging threat of IEDs called the Joint IED Defeat Organization (JIEDDO) aiming to protect American Soldiers through materiel and training. Martin quotes LTG Michael Barbero (Director of the JIEDDO at the time of her article), "We weren't created to go through some 3- or 4-year acquisition process. We are here to rapidly produce capabilities, and we have been doing that" (Martin, 2011). The U.S. response was to meet the insurgent enemy with an instrument of national power: the economy. Outspending the adversary and leveraging the tremendous intellectual capital of American industry would protect Soldiers and do it faster than the insurgents could innovate. The problem inherent in this solution is economics. Homemade bombs cost less than \$50; in 2011, the U.S. spent over \$2.8 billion on counter-IED tech. We are doing it again with counter-UAS technology.

However, the first and primary issue with the DoD response to UAS is not economic. The modern doctrine of Operations, Army Field Manual (FM) 3-0, describes the tenets of Multi-Domain Operations (MDO). Of interest to this issue is the tenet of "convergence," which is defined as "an outcome created by the concerted employment of capabilities from multiple domains and echelons against combinations of decisive points in any domain to create effects against a system, formation, decision maker, or in a specific geographic area" (Headquarters, Department of the Army, 2022). Convergence requires integration and interoperability of systems to provide decision-makers with the agility necessary to rapidly analyze and synthesize the battlespace and effectively leverage our technology to achieve effects on the battlefield. Crucial to this effort is the Army Warrant Officer, specialized officers that serve as an "innovative integrator of emerging technologies" (USAWOCC, 2024).

Requisite in that duty description is integrating these disparate systems into the existing mission command structure. Each materiel solution to the counter-UAS problem set produced by the American industry consists of its own vision of how that system should fit into the mission command infrastructure. Inherent in that problem set is the tendency of each service of the DoD to leverage its own existing system profile. We must not forget that the counter-UAS fight is, by nature, a joint fight, requiring unprecedented levels of inter-service integration and interoperability. Unless the services can come to a solution that recognizes the requirement for interoperability across services and echelons, the American Soldiers that implement these solutions on the battlefield, often Army Warrant Officers, will struggle to fit these disparate technologies into the infrastructure that underpins senior leader decision making and will effectively cede the initiative as the Soldiers implementing these technologies grapple with bureaucracy, time, and the complex reality of information systems.

Another crucial role of the Warrant Officer is that of system maintainer. Traditionally, Warrant Officers have served as maintenance leaders, ensuring the various systems under their purview are missioncapable and updated by the latest technical notices. The Soldiers who crew those systems understand preventative maintenance and basic services. As materiel solutions to the UAS problem rush into theater, they often come with warranties or contract logistics support as part of their fielding package. Additionally, since these systems are not yet programs of record, there is no institutional program of instruction to teach Soldiers how to perform critical maintenance functions. This results in a suite of civilian contractors accompanying the system to serve as maintainers and field support representatives (FSR). While this frees up Soldier technicians to focus on other tasks, the requirement to rely upon contract support unduly restricts those same technicians' access to the systems they are responsible for employing in combat. Dunigan writes in a Rand commentary that "[n]ow the U.S. military has developed a growing dependence on private contractors – and for a wide range of functions traditionally handled by military personnel" (2013) and that between 2001 and 2010, contract support cost "nearly \$5 billion per year" (2013). During the second guarter of fiscal year 2024, 21,000 contractors were serving in the USCENTCOM theater, with 5,455 personnel performing duties in Syria and Iraq, approximately half being United States citizens (Neenan, 2024).

As the cost to field these systems and the deployment of contractors that support them grows, the adversary continues to find efficiencies that drive down the cost of their weapon systems. While there has been a proliferation of technologically sophisticated UAS created by nation-states to non-state actors and national proxies such as Iranian Aligned Militia Groups (IAMG), commercial off-the-shelf technology can and is weaponized to great effect. Atherton writes about the intersection of commercial technology and military applications when she writes, "while the US-made Reaper drone costs \$28 million, the TB2 (a Turkish drone made from commercially available parts) only costs about \$5 million" (2023). The TB2 has shown up in conflicts all over the Middle East, Africa, and now Europe. That price tag is still high, considering that drones are available for purchase from Amazon and other internet retailers that sport high-definition cameras and cost a mere \$70 to \$100. Now, take into account that same drone with a fragmentation grenade duct-taped to its underside. Essentially, we have an incredibly low-cost, low-effort, and potentially catastrophic weapon available worldwide. Contrast these

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economical weapon systems with the Department of Defense technology solutions. The Coyote kinetic effector, manufactured by Raytheon, is marketed as a "low-cost rail-launched missile variant... for high-speed Counter-Unmanned Aircraft System missions" (Raytheon, 2024), and they cost \$100,000 to \$200,000 each. The cost-benefit ratio of using a \$100,000 missile to shoot down a \$1000 drone is questionable at best.

Unless the Joint Services can come to a shared, economical solution for low-cost UAS defense, the Department of Defense will continue to struggle with meeting the coming ubiquity of UAS on the battlefield. Solutions must be interoperable and, at best, utilize existing programs of record and established protocols defined within military standards (MIL-STD). Those systems should be laboratory-tested for convergence and then proven in Combat Training Centers. Soldiers need to be trained in their employment, and coordinating staff must be aware of the capabilities and limitations of these systems and their tenets of employment and best practices. Warrant Officers and other technician service members must be given the latitude to service and maintain these systems, even if those not as a "thing we have to do" but as an integral component of the Protection Warfighting Function, fully integrated into the Operations process. This is a process we need to apply today while we have the luxury of time, for if we wait to react to contact, the UAS threat will be a deadly knife-fight rather than a target we can knock down at three hundred meters.

References

- Al Jazeera Staff. (2024, April 15). Iran attacks Israel with over 300 drones, missiles: What you need to know. Al Jazeera. https://www.aljazeera.com/news/2024/4/14/ iran-attacks-israel-with-over-300-drones-missiles-what-you-need-to-know
- Atherton, K. (2013, January 30). Mass-market military drones have changed the way wars are fought. MIT Technology Review. https://www.technologyreview.com/2023/01/30/1067348/ mass-market-military-drones-have-changed-the-way-wars-are-fought/
- Headquarters, Department of the Army. (2022, October). FM 3-0 Operations. https://armypubs.army. mil/epubs/DR_pubs/DR_a/ARN36290-FM_3-0-000-WEB-2.pdf
- Martin, R. (2011, December, 17). The IED: The \$30-bombs that cost the U.S. billions. NPR. https:// www.npr.org/2011/12/18/143902421/in-iraq-fighting-an-improvised-war
- Miller, Z., & Baldor, L. (2024, January 29). Biden says US 'shall respond' after drone strike by Iran-backed group kills 3 US troops in Jordan. Associated Press. https://apnews.com/article/ biden-american-service-members-killed-jordan-iran-5cb774fd835a558d840ae91263037489
- Neenan, A. (2024, June 6). Defense primer: Department of Defense contractors. Congressional Research Service. https://crsreports.congress.gov/product/pdf/IF/IF10600
- Raytheon. (2024). Coyote. https://www.rtx.com/raytheon/what-we-do/ integrated-air-and-missile-defense/coyote
- Thompson, K. (2024, January 16). How the drone war in Ukraine is transforming conflict. Council on Foreign Relations. https://www.cfr.org/article/how-drone-war-ukraine-transforming-conflict
- USAWOCC. (2024, January 19). United States Warrant Officer Career College (USAWOCC). The Army University. https://armyuniversity.edu/wocc/courses

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The Impact of Emerging Technologies

CW4 Rickey A. Sturdivant, U.S. Army, Military Intelligence, (MI WOSSE follow-on)

We live in an era characterized by rapid technological advancement, and the impact of emerging technologies on society has become increasingly significant. These innovations, from Artificial Intelligence (AI) to Blockchain and Biotechnology, are reshaping industries, altering employment landscapes, and transforming how we interact with the world around us. This paper explores the implications of these technologies. Understanding the impact of emerging technologies is crucial in navigating the complexities of the modern world. These technologies can potentially revolutionize sectors ranging from healthcare and finance to transportation and communication. They offer opportunities for economic growth, efficiency improvements, and societal advancement. However, their widespread adoption also raises ethical, social, and environmental concerns that must be addressed. Therefore, studying their impact is vital for policymakers, businesses, researchers, and individuals to make informed decisions and shape responsible technological development. This research topic is significant because it intersects with ethics, innovation, and societal progress. As someone deeply interested in technology and its potential to drive positive change, I am intrigued by the transformative power of emerging technologies. However, I am also aware of the ethical dilemmas and societal challenges they present. This paper focuses on three key emerging technologies: Artificial Intelligence (AI), Blockchain, and Biotechnology. Artificial Intelligence (AI) has revolutionized numerous fields, from healthcare to finance, by enabling machines to perform tasks that traditionally required human intelligence.

Al algorithms, fueled by large amounts of data and sophisticated computer programs, have the potential to optimize decision-making processes, leading to improved efficiency and innovation. However, with these advancements come ethical considerations that must be considered and addressed. One of the more pressing ethical concerns surrounding Al algorithms is the issue of bias. Bias can manifest in various forms, including racial, gender, and socioeconomic biases, reflecting historical inequalities in the data used to train Al systems. Biased algorithms can perpetuate discrimination and exacerbate existing societal inequalities, leading to unfair treatment and outcomes for specific individuals or groups. Transparency is an essential aspect of ethical Al decision-making. The public should understand how Al algorithms arrive at their conclusions to assess their validity and fairness. However, many Al systems operate as black boxes, making it challenging to comprehend their decision-making processes. Lack of transparency can undermine trust in Al systems and hinder accountability for their outcomes. Determining accountability for the decisions made by Al algorithms poses significant ethical challenges. Traditional accountability frameworks may not adequately address the complexities of Al systems, especially when multiple actors are involved in their development and deployment. Crawford & Calo (2016); Jobin, lenca, & Vayena (2019).

Al algorithms often rely on large amounts of personal data to function effectively. The use of sensitive information raises concerns about privacy and data protection. Without proper safeguards, AI systems can infringe upon individuals' privacy rights and expose them to potential harms, such as surveillance and unauthorized access to personal data. The widespread deployment of AI algorithms has profound societal implications, shaping employment opportunities, access to resources, and power dynamics. Ethical AI decision-making requires consideration of the broader societal impact, including the potential exacerbation of inequality and exclusion. Addressing these concerns ensures that AI technologies contribute to social good and equitable outcomes. Addressing their ethical implications becomes paramount as AI algorithms increasingly integrate into various aspects of society. Bias, transparency, accountability, privacy, and societal impact are among the key ethical considerations that must be carefully examined and addressed in developing and deploying AI systems. Prioritizing ethical principles

helps to mitigate risks and ensure responsible and fair decision-making processes in an AI-driven world (Greenfield, 2018).



Image: Genius AI Rendering of Futuristic AI Robot

Blockchain technology, initially popularized by cryptocurrencies such as Bitcoin, has transcended its original application and is now recognized for its potential to revolutionize various industries and societal systems. This paper discusses the social and economic impacts of blockchain technology beyond cryptocurrency, focusing on its transformative potential in areas such as supply chain management, healthcare, voting systems, and decentralized finance. By examining relevant literature and case studies, this paper elucidates how blockchain technology fosters transparency, security, efficiency, and decentralization, ultimately reshaping social structures and economic systems. Blockchain technology, introduced through cryptocurrencies like Bitcoin, has evolved and has far-reaching effects beyond the realm of digital currencies. Unlike traditional centralized databases, blockchain operates on a decentralized, transparent, and immutable ledger system, offering numerous advantages in various sectors beyond finance. This paper delves into the social and economic impacts of blockchain technology in diverse domains, highlighting its potential to reshape existing systems and foster innovation. Blockchain technology holds promise for revolutionizing supply chain management by enhancing transparency, traceability, and efficiency. Through the use of distributed ledgers, blockchain enables stakeholders to track the movement of goods from their origin to the end consumer, reducing the risk of fraud, counterfeiting, and inefficiencies in supply chains (Crawford & Calo, 2016; Kuo, 2018).

In the healthcare sector, blockchain technology offers solutions to challenges such as interoperability, patient data privacy, and counterfeit drugs. By securely storing and sharing medical records on a decentralized ledger, blockchain can facilitate seamless data exchange among healthcare providers while ensuring patient confidentiality and data integrity.

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Blockchain-based voting systems can potentially enhance the integrity and accessibility of electoral processes. By recording votes on an immutable ledger, blockchain ensures transparency, tamper resistance, and auditability, mitigating electoral fraud and manipulation concerns. Decentralized finance, facilitated by blockchain technology, is revolutionizing traditional financial systems by enabling peer-to-peer lending, automated trading, and asset tokenization. DeFi platforms leverage smart contracts to execute financial transactions without intermediaries, offering individuals greater financial inclusion and autonomy worldwide Myagmar, Schmidt, (2018). Beyond its economic implications, blockchain technology has the potential to empower marginalized communities, facilitate humanitarian aid, and promote social impact initiatives. By enabling transparent and accountable transactions, blockchain can enhance trust and efficiency in philanthropic endeavors, disaster relief efforts, and charitable donations. Blockchain technology represents a paradigm shift in conceptualizing and interacting with data, transactions, and social structures. Itstransformative

potential extends far beyond cryptocurrency, impacting diverse sectors such as supply chain management, healthcare, voting systems, and decentralized finance. Blockchain technology is poised to reshape existing systems, empower individuals, and drive socioeconomic innovation in the digital age by fostering transparency, security, efficiency, and decentralization (Mougaya, 2016).

The rapid advancement of biotechnology, particularly gene editing technologies such as CRISPR (short for "clustered regularly interspaced short palindromic repeats"), has brought hope for scientific and medical breakthroughs. These advancements also raise ethical considerations and societal implications. Biotechnology and gene editing technologies hold tremendous potential for addressing pressing global challenges in healthcare. agriculture, and environmental sustainability. However, as these technologies



become more sophisticated, ethical considerations regarding their applications and implications become increasingly complex. This paper examines the ethical dilemmas and societal implications arising from biotechnology advancements, focusing on gene editing technologies like CRISPR (Lander, 2017; National Academies of Sciences, Engineering, and Medicine, 2017).

Clustered Regularly Interspaced Short Palindromic Repeats (CRISPR) is a gene-editing tool that has garnered recognition for its potential to edit DNA with unprecedented precision and efficiency. While CRISPR offers promising applications in areas such as disease treatment, agricultural improvement, and conservation, its use raises ethical concerns regarding safety, equity, and unintended consequences Doudna, Charpentier (2014).

The prospect of editing the human germline using CRISPR technology raises profound ethical questions about the potential for heritable genetic modifications. Concerns about safety, consent, equity, and the creation of designer babies underscore the need for careful ethical deliberation and regulatory oversight in the pursuit of germline editing (Doudna, 2020). The equitable distribution of gene editing technologies, particularly in the context of healthcare, poses significant ethical challenges. Ensuring universal access to gene therapies and genetic enhancements while addressing issues of affordability, accessibility, and disparities in healthcare access is essential for promoting social justice and equity (Doudna, 2020).

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Respecting individuals' autonomy and ensuring informed consent are fundamental ethical principles in the application of gene editing technologies. However, the complexity of genetic information, potential risks, and uncertainties surrounding gene editing interventions present challenges to obtaining truly informed consent from patients and research participants. The unpredictable nature of gene editing technologies raises concerns about unintended consequences, including off-target effects, genetic mutations, and unforeseen ecological impacts. Ethical uncertainty surrounding the long-term effects and broader societal implications of gene editing interventions underscores the need for precautionary approaches and ongoing ethical scrutiny (Lander, 2017; Jasanoff, 2018).

The societal implications of gene editing technologies extend beyond scientific and ethical considerations to encompass broader cultural, legal, and governance issues. Public engagement, inclusive deliberation, and interdisciplinary collaboration are crucial for navigating the complex societal implications of biotechnological innovations and ensuring responsible governance frameworks. Advancements in biotechnology, particularly gene editing technologies like CRISPR, hold tremendous promise for addressing global challenges and improving human well-being. However, these advancements also raise profound ethical considerations and societal implications that must be carefully navigated. By fostering interdisciplinary dialogue, stakeholder engagement, and ethical reflection, society can harness the transformative potential of biotechnological innovations while upholding ethical principles and promoting the common good Doudna (2020)

In conclusion, this paper outlines the importance of studying the impact of emerging technologies on society, with a specific focus on AI, Blockchain, and Biotechnology. By addressing critical questions, engaging with stakeholders, and employing diverse research methodologies, this study aims to contribute to a deeper understanding of the opportunities and challenges posed by these transformative innovations. Ultimately, the goal is to inform responsible technological development and promote societal well-being in the face of rapid technological change.

References

- Brynjolfsson, E., & McAfee, A. (2014). The second machine age: Work, progress, and prosperity in a time of brilliant technologies. WW Norton & Company.
- Buolamwini, J., & Gebru, T. (2018). Gender shades: Intersectional accuracy disparities in commercial gender classification. In Proceedings of the 1st Conference on Fairness, Accountability and Transparency (pp. 77–91).

Crawford, K., & Calo, R. (2016). There is a blind spot in Al research. Nature, 538(7625), 311–313.

- Char, D. S., & Lee, S. S. (2018). Ensuring the ethicality of artificial intelligence in precision medicine. The American Journal of Bioethics, 18(9), 38–40.
- Doudna, J. A., & Charpentier, E. (2014). The new frontier of genome engineering with CRISPR-Cas9. Science, 346(6213), 1258096.
- Doudna, J. A. (2020). The promise and challenge of therapeutic genome editing. *Nature*, 578(7794), 229–236.
- Greenfield, R. (2018). Biased algorithms are everywhere, and no one seems to care. *WIRED*. Retrieved from https://www.wired.com

- Jobin, A., Ienca, M., & Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence*, 1(9), 389–399.
- Jasanoff, S., & Hurlbut, J. B. (2018). A global observatory for gene editing. *Nature*, 555(7697), 435–437.
- Kimmelman, J., & others. (2015). CRISPR: Science can't solve it. *Nature*, 528(7580), 477–479.
- Kuo, T. T., & Kim, H. E. (2018). Blockchain distributed ledger technologies for biomedical and health care applications. *Journal of the American Medical Informatics Association*. 24(6), 1211–1220.
- Lander, E. S., & Baylis, F. (2017). Responsibilities and limits of the new gene editing technology. JAMA, 317(13), 1329–1330.
- Mittelstadt, B. D., et al. (2016). The ethics of algorithms: Mapping the debate. *Big Data & Society*, 3(2), 205395171667967.
- Mittelstadt, B. D., et al. (2019). Explaining explanations in Al. In Proceedings of the Conference on Fairness, Accountability, and Transparency (pp. 279–288).
- Mougayar, W. (2016). The business blockchain: Promise, practice, and application of the following internet technology. John Wiley & Sons.
- Myagmar, S., & Schmidt, D. C. (2018). A blockchain-based approach for transparent and trustworthy voting. IEEE Access, 6, 38405–38420.
- National Human Genome Research Institute. (n.d.). *The Human Genome Project*. Retrieved from https://www.genome.gov
- Thilakan, J., & Padmanabhan, M. (2020). Environmental impacts of cryptocurrency mining: A systematic review. *Sustainability*, 12(10), 4205.
- National Academies of Sciences, Engineering, and Medicine. (2017). *Human genome editing: Science, ethics, and governance*. National Academies Press.
- Sleeboom-Faulkner, M., et al. (2019). Comparative ethics of stem cell research and therapy. Springer.
- Simonite, T. (2011). How Watson won Jeopardy. *MIT Technology Review*. Retrieved from https://www. technologyreview.com
- Tapscott, D., & Tapscott, A. (2016). *Blockchain revolution: How the technology behind Bitcoin is changing money, business, and the world*. Penguin.

The Hydroponic Garden Experiment

CW3 Taj Keeler, U.S. Army, Quartermaster

So What

As military operations evolve from Population-centric Counterinsurgency (COIN) to Large-Scale Combat Operations (LSCO), there's an increasing need to adapt and enhance logistical support systems to maintain operational effectiveness across diverse and challenging environments. This shift is particularly crucial in Multi-Domain Operations, where agility, convergence, endurance, and depth are critical factors in achieving strategic objectives (PDF 3-2397 Sustainment Operations in Large Scale Combat Operations, 2023). In this dynamic context, introducing Hydroponics Tactical Gardening systems into Field Feeding operations represents a significant innovation under the Shaping Tomorrow initiative. These systems are designed to revolutionize Class 1 ration sustainment operations by leveraging advanced hydroponic technology to grow fresh produce directly at or near operational sites. This approach enhances the nutritional value and variety of food available to deployed forces, reduces logistical footprints, and improves self-sufficiency. According to Field Manual 5-0, Planning and Procedures, the art of planning requires the creative application of doctrine, units, and resources. Implementing these tactical hydroponic systems aligns with the broader goal of maximizing the potential of austere environments and boosting the autonomy and endurance of military forces during highintensity conflicts. By integrating such innovative solutions into Class 1 operations, the military can significantly enhance its ability to sustain its personnel in diverse operational contexts, ensuring that troops are well-nourished, more resilient, and ready to perform at their best (Army Regulation 40-25, 2017).

Introduction

The 166TH RSG Field Feeding Detachments, in collaboration with the Army, Go 4 Green program, conducted a groundbreaking 29-day hydroponic garden experiment during WAREX 87-23-01 at Fort McCoy, WI. This experiment's primary objective was to explore the holistic health and fitness (H2F) benefits of nutritional and mental well-being and organic self-sustainment methods for Army Field Feeding Detachments. The goal was a continuous supply of dietary vegetables and herbs for a 150-person company during Large Scale Combat Operations (LSCO). The experiment sought to address wartime challenges of sourcing fresh produce, the enhancement of Unit Group Rations (UGRs), the reduction of military produce costs, and the added benefit of a therapeutic outlet for Soldiers experiencing mental stress.

The Endurance of Hydroponics Tactical Gardening Sustainment

Incorporating hydroponics into military operations as a supplement to traditional food procurement methods produced by civilian agencies offers several strategic advantages, particularly in enhancing the logistical and operational efficacy of military forces engaged in extended campaigns. Reduced Logistic Footprint Traditional food supply chains in military settings often involve complex logistics, including procuring, storing, and transporting perishable goods over long distances (Field Manual 4-0 Sustainment, 2022). This increases the risk of supply disruptions due to enemy action or logistical failures and ties up critical resources and manpower in supply chain management. By integrating

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hydroponics— a method that allows for the on-site cultivation of vegetables, spices, and herbs—military operations can significantly reduce their reliance on lengthy supply lines. This reduction in logistical footprint decreases the vulnerability of forces to attacks aimed at supply routes and frees up resources for other operational needs, such as:

1. Enhanced Operational Endurance: The ability to grow fresh produce on or near the battlefield provides military commanders with an enhanced endurance posture. Tactical hydroponics ensures a steady and controllable supply of fresh nutrients, particularly valuable in austere or remote environments where traditional supply lines might be compromised or non-existent. The self-sufficiency afforded by hydroponics allows units to maintain operational readiness over more extended periods without the need for resupply, which can be critical in prolonged engagements.

2. Boosted Morale and Health: The availability of fresh food, such as vegetables, herbs, and spices, plays a significant role in maintaining soldier morale and health. Fresh produce diversifies the diet, improving the palatability and variety of meals and providing essential nutrients that help keep sol-

diers' physical and mental well-being. This is particularly important in high-stress combat situations, where optimal physical and mental conditions are crucial for performance.

3. Adaptability and Scalability: Hydroponic tactical systems can be adapted to various environments and scaled according to need. Whether in temperate, arid, or tropical climates, these systems can be adjusted to provide optimal growing conditions for a range of produce, making them suitable for diverse operational theaters. Additionally, hydroponic systems can be scaled up or down based on the size of the troop deployment, providing flexibility in food production directly correlated to operational demands.

4. Environmental Sustainability: Hydroponics is a water-efficient agriculture technology, using up to 90% less water than traditional soil agri-



culture. This aspect of hydroponics is especially beneficial in regions where water resources are scarce or need to be conserved for local populations. Furthermore, hydroponics contributes to an environmentally sustainable approach to military logistics by reducing the need for transport and the associated carbon footprint. Agility Tactical usage revamping our Food Operation systems space saving technology to move and sustain forces and to adjust commanders' disposition and aggressiveness more rapidly than the enemy.

Experiment Details

The experiment took place in USDA Hardiness Zone 5a, a challenging Wisconsin climate characterized by distinct seasons and significant variations in precipitation and temperature. The hydroponic garden included a variety of vegetables commonly used by Culinary Arts Specialists, such as onions, chives, jalapeno peppers, iceberg lettuce, red lettuce, parsley, rosemary, bell peppers, basil, and sweet basil. Two hydroponic systems were employed: the VIVOSUN Hydroponics and the LAPOND Hydroponic growing system, which are capable of supporting 108 plant sites across 3 layers. These stackable

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systems were selected to optimize battlefield space and utilize Food Safe PVC pipe to align with a holistic approach to Logistics Package Operations.

Challenges

The experiment encountered unpredictable weather conditions from late May through June 2023, with temperatures ranging from 91 degrees Fahrenheit during the day to as low as 29 degrees Fahrenheit before sunrise. Managing these extreme temperature fluctuations posed a significant challenge. To address these challenges, we employed innovative solutions, including using woodland camouflage netting to regulate direct sunlight exposure and inserting fish tank heat pumps inside 5-gallon water buckets to prevent water from freezing at night.

Depth Benefits and Outcomes

Hydroponic systems enable the on-site production of fresh produce, reducing the need for extended supply chains vulnerable to disruption and requiring significant energy and resources to maintain. This immediacy in food supply can be critical in combat zones where traditional supply lines are compromised. Growing food close to or within military bases ensures a consistent, reliable source of nutrition, enhancing the self-sufficiency and resilience of military units. This is particularly beneficial in isolated or harsh environments where external resupply is challenging or risky (Field Manual 3-0 Operations, 2022). Despite the formidable challenges posed by the Wisconsin climate, the hydroponic garden experiment yielded several remarkable benefits:

Cost Reduction and Sustainability: The experiment demonstrated that Army Field Feeding Detachments can reduce production costs while ensuring sustainability during large-scale combat operations. The detachment significantly reduced reliance on external sources by growing fresh produce on-site without pesticides or chemicals.

Scalability and Adaptability: Hydroponic systems are highly adaptable to different climates and settings and can be scaled to meet the needs of units of various sizes. Hydroponics can be adjusted to provide an appropriate scale of food production, whether for a small forward-operating base or a more extensive established base. This flexibility ensures that the benefits of hydroponics can be realized across a wide range of scenarios and operational demands.

Mental Domain and Well-being: The garden served as an essential therapeutic outlet for Soldiers facing mental domain challenges. Many Soldiers sought solace in connecting with the earth and participating in garden maintenance. It provided an opportunity for relaxation, emotional release, and an avenue to decompress, ultimately contributing to improved mental well-being. The quality and variety of food available to soldiers directly impact morale and health. Hydroponic systems allow for cultivating various vegetables and herbs, providing fresh ingredients that improve meals' taste and nutritional value. This not only boosts morale but also supports the physical health of soldiers, which is essential for maintaining combat readiness.

Camaraderie and Team Building: The garden fostered camaraderie among Soldiers, even those from different units. Several Soldiers voluntarily attended the garden before or after their regular work shifts. This communal activity enhanced unit cohesion and facilitated positive interactions among personnel.

Go For Green (G4G) Initiative

Hydroponic gardening systems present a unique convergence of operational efficiency and environmental stewardship, aligning seamlessly with the Army's Go Green initiative even during large-scale combat operations. This innovative approach to agriculture not only enhances the logistical capabilities of the Army but also demonstrates a commitment to sustainable practices, which are increasingly crucial in modern military operations. Reduced Environmental Impact: Implementing hydroponics as part of the Army Go for Green (G4G) initiative underscores the commitment to reducing environmental impact. Hydroponic farming uses substantially less water than traditional soil-based agriculture—a crucial factor in areas where water is scarce or conservation is a priority. Additionally, by localizing food production, the Army can significantly reduce the carbon emissions of transporting food supplies from distant sources.

Modern hydroponic systems can be integrated with renewable, energy efficient sources such as solar or wind power, further reducing the ecological footprint of military operations. These systems can operate efficiently on low-power inputs. They can be configured to utilize energy from portable renewable sources, making them ideal for deployment in forward or remote operating bases. Promoting Sustainability as a Strategic Advantage: By embracing hydroponics and the broader Go Green initiative, the Army enhances its operational capabilities and positions itself as a leader in sustainable military practices. This commitment can serve as a strategic advantage, improving the Army's image and relations with local and global communities and demonstrating an innovative approach to the challenges of modern military engagements. Incorporating hydroponic gardening systems into Army operational goals while advancing its commitment to environmental responsibility and sustainability. This alignment enhances the operational readiness of the Army, fosters innovation, and contributes to a more sustainable approach to military engagements.

Conclusion

The tactical hydroponic garden experiment at Fort McCoy, WI, demonstrated the potential benefits of using hydroponics by Army Field Feeding Detachments. The demonstration displayed benefits across H2F, particularly emphasizing cost-effectiveness, sustainability, and mental domain support. This initiative approach demonstrated the adaptability of Army units to address nutritional and mental domain domains in an LSCO environment. Incorporating hydroponic tactical gardening systems into Army operations is more than a logistical solution; it is a strategic approach that supports the Army's operational goals while advancing its commitment to environmental responsibility and sustainability. This alignment enhances the operational readiness of the Army, fosters innovation, and contributes to a more sustainable approach to military engagements. The success of this experiment suggests that integrating hydroponic gardens into field operations warrants further exploration and consideration as a viable strategy for Army units. Integrating hydroponic farming into military logistics is a forward-thinking strategy that enhances operational effectiveness, endurance, and sustainability. It provides a robust solution to several logistical challenges military operations face, ensuring that forces remain agile, well-nourished, and ready for prolonged engagements. It underscores the Army's unwavering commitment to holistic health and fitness, ensuring the well-being of our greatest asset, our Soldiers.

References

- Department of the Army. (2017). *Army Regulation 40-25: Nutrition and menu standards for human performance optimization*. https://armypubs.army.mil/epubs/DR_pubs/DR_a/pdf/web/AR40-25_WEB_Final.pdf
- Department of the Army. (2022). Field Manual 3-0: Operations. https://armypubs.army.mil/epubs/ DR_pubs/DR_a/ARN36290-FM_3-0-000-WEB-2.pdf
- Department of the Army. (2022). Field Manual 4-0: Sustainment. https://armypubs.army.mil/epubs/ DR_pubs/DR_a/pdf/web/ARN19602_FM%204-0%20FINAL%20WEB%20v2.pdf
- Department of the Army. (2022). *Field Manual 5-0: Planning and orders production.* https://armypubs. army.mil/epubs/DR_pubs/DR_a/ARN36775-FM_5-0-001-WEB-3.pdf
- Department of the Army. (2023). Sustainment in large-scale combat operations. Retrieved from https://api.army.mil/e2/c/downloads/2023/01/31/e43e5094/22-657-sustainment-in-large-scalecombat-operations-public.pdf



Transforming the Traditional Guard Routine

CW3 Kathlynn Varshine, U.S. Army National Guard, Aviation

Switching the National Guard duty schedule to one week every three months (quarterly) presents numerous advantages that can address training effectiveness and personal balance for Guard members. Currently, the traditional weekend drill schedule often results in inefficiencies. Imagine, if you will, the current setup: a National Guard member, let's call him Sergeant Joe, rushes through his regular workweek at his civilian job, only to trade in his much-needed weekend relaxation for a drill. Picture Joe frantically closing deals on Friday evening, only to hit the sack early because he has to report for drill at 0700 hours on Saturday. He arrives at the armory, bleary-eyed, ready for action. But, alas, his first task? Administrative catch-up. Yes, Joe spends the morning filling out paperwork, updating personal records, and attending mandatory briefings. By the time Joe properly reacquaints himself with the mountain of bureaucracy, it's almost noon.

Now, Joe finally gets to do what he signed up for—training. But wait, it's only a refresher course on basic skills he's already done a dozen times because it's another box we must check. The afternoon is a blur of repetitive drills that feel like time fillers while senior leadership catches up on CUBs, BUBs, training meetings, safety council, decision briefs, and staff syncs; it's time to call it a day. Sunday rolls around, and the cycle begins anew. By the time Joe gets into the swing of things, it's time to pack up and head home. Monday morning looms, bringing another civilian workweek and little to show for his weekend.

Now, let's imagine an alternative scenario with a quarterly drill schedule. Instead of the hectic, fragmented weekend drills, Joe has an entire week dedicated to training every three months. He arrives on base, ready to dive deep into comprehensive, uninterrupted training. Picture Joe and his unit engaged in complex, scenario-based exercises that build on each other day by day. By midweek, they're operating at peak efficiency, running simulations that mimic real-world missions, honing their skills in a way that weekend drills could never allow. The difference is night and day—like trying to read a novel five minutes at a time versus binge-reading it over a lazy Sunday afternoon.

The current weekend drill schedule often results in fragmented and superficial training experiences. National Guard members spend considerable time reacquainting themselves with systems and paperwork, leaving limited time for in-depth training. In contrast, extended, uninterrupted training periods of one week every three months allow for more comprehensive and immersive training. The idea of an extended training period benefits Joe and the entire unit. This setup enhances readiness and operational effectiveness, as units can engage in more complex exercises and scenario-based training without the constant interruptions that shorter drills bring. Research by the Army Training Network emphasizes that uninterrupted training time supports adopting modern training technologies and methodologies, ensuring that units remain at the forefront of military capabilities (Army Training Network, 2020). Units like the 165th Airlift Wing have reported increased efficiency and productivity after shifting to extended drills, noting that members could complete tasks more thoroughly without the constant breaks typical of weekend drills (Ross, 2022).

More extended training periods reduce the time and money spent on travel and setup, often eating into the valuable training hours of shorter weekend drills. Instead of spending hours driving to the armory, setting up, and re-familiarizing themselves with the systems, Guard members can dive straight into meaningful, uninterrupted training sessions. The National Guard Bureau has highlighted the efficiency gains from extended training periods, allowing units to complete tasks more thoroughly and effectively (National Guard Bureau, 2021). From an operational perspective, aligning training schedules with the availability of higher headquarters and supporting elements, which typically operate on standard weekday schedules, can lead to more comprehensive and realistic training exercises. This alignment ensures all necessary support elements are available, bridging communication gaps and allowing for more integrated and practical training sessions (Knight, 2023). The proposed quarterly schedule also addresses morale and retention issues. The traditional weekend drills often conflict with soldiers' civilian commitments, creating stress and reducing overall job satisfaction. A CPT Knight (2023) study found that flexible training schedules positively impact soldiers' morale and retention rates. By implementing a more predictable and less frequent drill schedule, soldiers can better balance their military and civilian lives, leading to higher job satisfaction and retention rates. Additionally, reducing the frequency of drills alleviates the burden of unpaid hours spent on military duties, contributing to higher morale and job satisfaction (Knight, 2023; Aragon, 2024). The shift to a quarterly drill schedule is like upgrading from a clunky old typewriter to a sleek, efficient laptop. It offers a smoother, more effective way to handle the necessary tasks while providing substantial benefits in training depth and personal balance. With enhanced communication, flexible scheduling, and robust support systems, this new approach can balance military obligations and civilian careers, ensuring that our National Guard remains ready and resilient.

References

- Aragon, A. (2024). Beyond the weekend: Unraveling the reality of National Guard members. *Strength in Knowledge: the Warrant Officer Journal*, II(1), 44–49.
- Department of the Army. (2020). Army Training Network. https://atn.army.mil/
- Department of the Army. (2024). *ADP 7-0: Training.* https://armypubs.army.mil/epubs/DR_pubs/DR_a/ ARN40738-ADP_7-0-000-WEB-2.pdf
- Knight, P. (2023). Training for lethality and retention in the Army National Guard. CALL. https://api. army.mil/e2/c/downloads/2023/11/28/31eba344/24-830-training-for-lethality-and-retention-in-thearng-oct-23-public.pdf
- National Guard Bureau. (2021). Efficiency gains from extended training periods. https://www.ngbpmc. ng.mil
- Ross, C. (2022, December). 165 Airlift Wing implements new drill schedule for FY2023. Air National Guard. https://www.ang.af.mil/Media/Article-Display/Article/3232947/

GEOINT Production on the Unclassified Domain: Progression of the Tradecraft

CW4 Matthew Allen, U.S. Army, Military Intelligence (MI WOSSE Follow-On)

The Army G2 must institute a policy to incorporate unclassified and CUI Geospatial-Intelligence (GEOINT) production to support all echelons to enable intelligence sharing between Joint services, partner nations, and non-governmental organizations. Joint and multinational operations are hindered by cultural, not doctrinal, over-classification, and restrictive cross-domain limitations. Integrating GEOINT capabilities on the unclassified domain will remove cross-domain limitations, create cloud-enabled GEOINT, and incorporate artificial intelligence, machine learning, and computer vision.

GEOINT production on the unclassified domain enables the Army, Department of Defense (DOD), and Intelligence Community (IC) to share, host, collaborate, and disseminate GEOINT) more broadly. This approach facilitates more comprehensive access to critical geospatial data and intelligence, governed by the original classification authority based on criteria such as "need to know," production requirements, or mission objectives. Such access ensures that all forms of geospatial information are available to all users. This authorization system promotes a "unity of effort," aligning with the National System for Geospatial Intelligence (NSG) goals: Enterprise: Commercial GEOINT Strategy 2021.

Sharing and collaboration across military and intelligence organizations are critical for operational effectiveness (Joint Publication 2-0, 2020). This doctrine underlines the importance of accessible and actionable intelligence in supporting joint operations and strategic objectives. The transition to an unclassified GEOINT domain fosters greater interoperability, transparency, and coordinated effort, thus supporting the NSG's aim to "increase transparency, commonality, and coordinated purpose" (Commercial GEOINT Strategy, 2021, p. 3) within Large Scale Combat Operations (LSCO).

The GEOINT field is modernizing, driven by unclassified technological advancements such as new sensors, machine learning (ML), and computer vision systems. As Col. Rob Shaw highlighted, "In a future fight, the US will have to fight with its partners and allies, and to make that interoperability real, our network has to be as flat, fast, and accurate as possible. Because it's at an acceptable level of encryption, I can pull in our partner nations" (Shaw, 2023). The increasing availability of unclassified GEOINT aligns with this need for seamless integration.

Integrating automation and AI/ML with commercial data to accelerate intelligence activities underscores its importance (Commercial GEOINT Strategy, 2021). Producing GEOINT on the unclassified domain through Sensitive but Unclassified - Enhanced (SBU-E) channels makes information more accessible and shareable at the echelon Division and below. Unclassified GEOINT facilitates broader dissemination and enhanced operational coordination, fulfilling the strategic goals of increased transparency and interoperability while supporting the warfighter.

The lack of a clear policy or framework to authorize GEOINT analysis production on unclassified domains highlights the urgent need for a policy supporting the generation and dissemination of unclassified GEOINT to enhance support for Large-Scale Combat Operations (LSCO) and other critical military activities. No GEOINT policy, doctrine, or classification guidance within the Consolidated NGA Security Classification Guide (CONGA) denies unclassified GEOINT production or GEOINT products to be created, stored, or shared. As the NSG Strategy indicates, the Army "implements policies and procedures necessary to produce GEOINT at the lowest classification level and share at the broadest level of releasability." This approach aligns with maximizing the utility and accessibility of GEOINT across various operational environments.

The IC cultural bias indicates that the higher the classification level, the more accurate the analysis becomes. Some mistakenly believe classifying information at the highest level possible and then downgrading it as needed is a sound approach. However, both actions have proven to be hindrances to the warfighter. "In 2010, during the Obama administration's efforts toward transparency, an estimate suggested that as much as 90% of classified information did not need to be classified at that time or ever. Since then, the proliferation of digitally produced classified information has led experts to believe that this percentage could now be in excess of 95% or even 99%" (Shinkman, 2023). In addition, a study highlighted the challenges faced by NGA support on the battlefield. NGA support personnel struggled to obtain timely information and imagery for their partners. In response, US forces turned to unclassified imagery from commercial sources to "get the job done" effectively. (Sokolski, 2023, p. 6). An approach that considers classified and unclassified information is crucial for effective military operations. It ensures that warfighters have the correct data at the right time, regardless of classification levels.

It is best practice to classify information at the lowest possible classification. When needed, adding information may increase the classification to a higher level and enrich a different domain. NGA Geospatial Open-Source Situational Alert (GOSSA) is an example of using imagery analysis and adding PAI to provide GEOINT to the warfighter. Unclassified GEOINT will be disseminated to all authorized partners when analysis is started at the lowest classification level, adding information on the unclassified domains such as PAI and OSINT. For example, NGA recently published a GOSSA combining PAI and imagery report confirming a reported Russian Drone Hit Ternopil Industrial Facility (GOSSA, 2024).

Creating more intelligence and geospatial information on the unclassified domain would solve this issue. We need to "foster a culture of "commercial as a primary source" to maximize the utility of commercial capabilities for unclassified and classified use cases" (NGA, 2021, p. 3). Incorporating what we can share or create on the unclassified within PME training would start the mental and doctrinal transition of the JOINT forces to incorporate unclassified GEOINT production to increase shareability within military operations.

JP 5-0 states, "There is no single doctrine for multinational action, and each MNF develops its protocols, OPLANs, CONPLANs, and OPORDs. US planning for multinational operations should accommodate and complement such protocols and plans. JFCs must also anticipate and incorporate planning factors such as domestic and international laws, regulations, and operational limitations on using contributed forces, various weapons, and tactics." Under the most current commercial imagery license share and release guidance, the USG plus license allows sharing with partners when there is a USG purpose. Unclassified GEOINT production will enable military leaders to develop COA to accomplish the mission by collaborating and sharing intelligence from Division on down and across to other partners. 2nd Cavalry Regiment AAR from the Saber Junction 23 exercise indicated, "When tactical units cannot talk to each other, nor access the same battlefield information (such as common graphics, operation orders, and other reports and data), the same units cannot fight as effectively as possible, and the whole operation can suffer. An SBU-E network can help overcome this important challenge."

There are risks associated with creating GEOINT within the unclassified domain. These risks include the potential misuse of classified GEOINT tradecraft knowledge not authorized for the unclassified domain, non-GEOINT analysts creating GEOINT incorporating information that does not belong in its domain, and the risk of GEOINT databases or unclassified networks being compromised through hacking. Furthermore, commercial imagery collection may not be sufficiently rapid, causing delays from collection to analysis to deployment to the warfighter. Following GEOINT classification guidelines and proper quality control with two-person review and release will mitigate risks of classification spillage. GEOINT analysis of unclassified imagery is considered unclassified when staying within the image's National Imagery Interpretability Rating Scale (NIIRS) resolution. To mitigate hacking of our DOD systems, the government must use the

latest encryption, integrate password generator programs, encrypt sensitive data both in transit and at rest, and utilize multi-factor identification of username and password, pin, and token ID as is used on JWICS. Finally, NGA source collection has policies and procedures for prioritizing commercial imagery collection. Modernization of commercial imagery satellite resolution, increasing numbers of satellites and constellations, and license flexibility provide many processes to give opportunity and redundancy for collection requirements.

Integrating AI and Machine Learning (ML) into GEOINT production on the unclassified domain will significantly enhance data-enabled capabilities through Object-Based Production (OBP) principles. AI and ML technologies can automate the analysis of commercial imagery using CV and other data sources, improving the accuracy and speed of information sharing and decision-making. Analysts confirm the CV detections and produce their imagery analysis using OBP principles to feed the loop and train AI/ML systems. By leveraging these advanced technologies, man and machine can produce GEOINT more efficiently and effectively. Integrating the latest AI/ML technology to provide a comprehensive common operating picture across the Army, Department of Defense (DOD), partner countries, NGOs, and the media on a need-to-know basis. GEOINT production in the unclassified domain is critical in supporting various Joint and Army warfighting functions, including movement and maneuver, intelligence, sustainment, and protection. However, it is limited to supporting only Phase 1 of the Fires targeting process. The rest of the Fires warfighting function phases should be conducted within classified domains. Additionally, unclassified GEOINT production does not support mission command or command and control functions (JP 5-0, 2024, p. III-76; APD FM 3-0, 2022, p. v).

Training for enlisted personnel at the 10-level Basic Officer Leader Course (BOLC) and Warrant Officer Basic Course (WOBC) should focus on updated classification protocols, GEOINT architecture, AI/ML/ CV technologies, and technological advancements. This includes the integration of Object-Based Production (OBP) principles. Specifically, GEOINT Workstations (GWS) for the unclassified domain, the Maven program for computer vision, imagery production tools for reporting, and NIPR network connections must be seamlessly integrated within Titan systems.

TheArmymustdevelopapolicyforsustainedGEOINT production capabilities within the unclassified domain. Unclassified GEOINT production supports Joint and multinational operations, extending to the BCT level on NIPR and SBU-E domains. Producing GEOINT on the unclassified domain removes cross-domain limitations, allowing data to be web-



enabled, scalable to echelons below Corp and partner nations, and integrated with the latest AI/ML/CV technology. GEOINT produced on the unclassified domain data is enabled and scalable, contributing actionable intelligence to common operating pictures supporting LSCO and MDO for the warfighter.

References

- Intelink. (2024, July). NOME: NSG Open Mapping Enclave. https://intellipedia.intelink.gov/wiki/ NOME:_NSG_Open_Mapping_Enclave
- Joint Electronic Library Plus. (2024, July 1). Joint Publication 5-0: Joint Planning. https://jdeis.js.mil/. Retrieved August 23, 2024, from https://jdeis.js.mil/jdeis/new_pubs/jp5_0ch1.pdf
- Joint Publication 5.0: Joint Planning. (2024). Jdeis.js.mil. Available at: https://jdeis.js.mil/ (Accessed: 10 August 2024).
- JP 3-16, Multinational Operations. (2019, March 1). jcs.mil. https://www.jcs.mil/Portals/36/Documents/ Doctrine/pubs/jp3_16.pdf?ver=N5OFJfxmbzf2_K0CmEmwpg%3d%3d
- Lavers, C. (2013, February 4). The origins of high resolution civilian satellite imaging part 2: Civilian imagery programs and providers. Directions Magazine - GIS News and Geospatial. https://www.directionsmag.com/article/1646#targetText=In%201993%2C%20the%20US%20 Department,of%20earth%20for%20commercial%20sale
- Library of Congress. (1992, October 28). H.R.6133 102nd Congress (1991-1992): Land Remote Sensing Policy Act of 1992. Congress.gov. https://www.congress.gov/bill/102nd-congress/ house-bill/6133
- Malik, T. (2012, January 28). Declassified US spy satellites from Cold War Land in Ohio. Space.com. https://www.space.com/14394-declassified-spy-satellites-air-force.html
- media defense activity. (2022, October 27). Department of Defense releases its 2022 strategic reviews – national defense strategy, NUC. U.S. Department of Defense. https://www.defense.gov/News/Releases/Release/Article/3201683/ department-of-defense-releases-its-2022-strategic-reviews-national-defense-stra/
- National Geospatial-Intelligence Agency (NGA). (2021, January 1). 2035 GEOINT CONOPS. National Geospatial-Intelligence Agency. Retrieved June 17, 2023, from https://www.nga.mil/assets/files/2035_CONOPS_FINAL_Public_Release.pdf
- National Geospatial-Intelligence Agency (NGA). (2021, January 1). NSG Enterprise Commercial GEOINT Strategy. National Geospatial-Intelligence Agency. Retrieved June 17, 2023, from https://www.nga.mil/assets/files/Commercial_GEOINT_Strategy__ltr.pdf
- National Geospatial-Intelligence Agency (NGA). (2020, January 1). National System for Geospatial Intelligence (NSG) Strategy 2021-2025: Strength Through Community. National Geospatial-Intelligence Agency. Retrieved June 17, 2023, from https://www.nga.mil/assets/files/200310-039_NSG_Strategy_2021-2025_PR_20-687_Web.pdf
- National Geospatial-Intelligence Agency (NGA). (2024, April 23). Consolidated NGA Classification Guide. Https://web.Intranet.nga.mil/. Retrieved August 24, 2024, from https://web.intranet.nga. mil/org/SI/SitePages/CoNGA.aspx
- National Geospatial-Intelligence Agency (NGA). (2024, June). Joint NGA, NRO, NSA, & USSF Commercial Constellations Report, GA Commercial Capabilities Discovery Office (SCD). https:// pixtoday.net/article/file/3418142/download?inline=true&type=application%2Fpdf

National Geospatial-Intelligence Agency. (n.d.). The Globe. https://globe.nga.mil/

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- National Reconnaissance Office (NRO). (2022, May 22). National Reconnaissance Office release #10-22 for immediate release. National Reconnaissance Office. https://www.nro. gov/Portals/65/documents/news/press/2022/NROL-91%20Press%20Release_FINAL. pdf?ver=06d3QiVurqtAkQH1cdIPKA%3D%3D
- National Reconnaissance Office (NRO). (2018, September 11). A History of satellite reconnaissance Volume I. National Reconnaissance Office. https://www.nro.gov/Portals/65/documents/foia/docs/ HOSR/SC-2017-00006e.pdf
- Nations, U. (1996). United Nations Office for Outer Space Affairs. The Outer Space Treaty. https:// www.unoosa.org/oosa/en/ourwork/spacelaw/treaties/introouterspacetreaty.html
- Nonproliferation Policy Education Center (NPEC). (2023, March 28). Over-classification: How bad is it, what's the fix? (occasional paper 2303). NPEC: Nonproliferation Policy Education Center. https://npolicy.org/over-classification-how-bad-is-it-whats-the-fix-occasional-paper-2303/
- Shinkman, P. D. (2023, January 24). EXPLAINER: The What, Why, How Much and How Often Behind Classified Information in the U.S. Https://www.Usnews.com. Retrieved August 22, 2024, from https://www.usnews.com/news/national-news/articles/2023-01-24/ explainer-the-what-why-how-much-and-how-often-behind-classified-information-in-the-u-s
- Sokolski, H. (2023a, March). Over-classification: How Bad Is It, What's the Fix? NPEC: Nonproliferation Policy Education Center. https://npolicy.org/wp-content/uploads/2023/03/2303-Full-Classification-Report.pdf
- Science, L. (2022, July 20). History. NASA. https://landsat.gsfc.nasa.gov/about/history/
- UCS. (2005, December 8). UCS Satellite Database. Union of Concerned Scientists. https://www. ucsusa.org/resources/satellite-database
- US Army. (2018, December 6). The US Army in Multi-Domain Operations 2028. United States Army Training and Doctrine Command Administrative Publications. https://adminpubs.tradoc.army.mil/ pamphlets/TP525-3-1.pdf
- US Army. (2019, July). ADP 3-0 Operations. Army Publishing Directorate. https://armypubs.army.mil/ epubs/DR_pubs/DR_a/ARN18010-ADP_3-0-000-WEB-2.pdf
- Warner, M. (2023, April 19). Sen. Mark Warner on leaked classified documents closed briefing. C Span. https://www.c-span.org/ video/?527493-3%2Fsen-mark-warner-leaked-classified-documents-closed-briefing
- Wood, T. (2020, October). Who owns our orbit: Just how many satellites are there in space? World Economic Forum. https://www.weforum.org/agenda/2020/10/ visualizing-easrth-satellites-sapce-spacex/
- www.whitehouse.gov. (2022, November 8). National security strategy the white house. www. whitehouse.gov. https://www.whitehouse.gov/wp-content/uploads/2022/11/8-November-Combined-PDF-for-Upload.pdf

Trimming the Fat

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Are we our own worst enemy in preventing us from moving forward to keep up with and outpace our enemy? Do we realistically think that our most significant threats of China, Russia, and other state or non-state actors (that seek to disrupt the security, prosperity, and influence of the United States) are wasting their critical time, efforts, and resources on antiquated training, redundant inspections, and other cumulative requirements as we do in the Army? Does the Army simply hold onto these requirements that no longer apply as a sense of security? Is it merely that our operational tempo has grown so expeditiously that we do not have the time nor value the importance of periodically reviewing and eliminating items from our insurmountable list of "mandatory" training and other non-essential directed requirements? One can quickly conclude that our priorities have become misaligned, which consumes valuable time and restricts our ability to focus on the essential tasks supporting our strategic objectives and ensuring our combat readiness.

As a nation, we are at an "evolutionary inflection point" (U.S. Department of the Army, 2022, p. xi) where we must transition beyond the incremental changes that have occurred over the past 40 years so that we can "trim the fat" and move forward to focus on what is needed. Today's contested environments throughout the world have thrust the Army among a plethora of other domestic and foreign service branches, agencies, and organizations to combine forces and efforts for multidomain operations that are required for unified action. This detailed systemic description of our current situation's desired end state and strategic recommendations are based on research for consideration by the appropriate Army Senior decision-makers. The Army's current state of extensive mandatory training and inundation of other requirements necessitates reducing our non-essential tasks to maximize our time available and streamlining our focus on requirements that directly support our strategic objectives and operational readiness.

Background

In 2015, Dr. Leonard Wong and Dr. Stephen Gerras published a study, "Lying to Ourselves: Dishonesty in the Army Profession." I enjoyed hearing Dr. Wong speak about their research and findings and how they were received at our Annual Aviation Safety Day 2018. This paper will focus on the recognized deluge of Army requirements rather than the ethical fading and rationalization of inaccurate compliance reporting for individuals that Dr. Wong ascertained through his research with the below-focused discussion.

Current State

As an institution, the Army has successfully created an environment through extensive mandatory training and inundation of other requirements where it is impossible to accomplish all required tasks to standard. In the study mentioned above conducted by Wong & Gerras (2015):

Analysis began with an exploration of the avalanche of mandatory training requirements levied throughout the Army. It has been fairly well established that the Army, as an institution, is quick to pass down requirements to individuals and units regardless of their ability to actually comply with the totality of the requirements (p.4).

Concerns regarding this alarming trend were recognized as early as 2001 when the Army Training and Leader Development Panel noted that the Army could no longer follow its training management doctrine due to insufficient resources, especially time. Furthermore, in 2002, a study at the Army War College determined that 297 days were required for all mandatory training, far exceeding the 256 days available in a year (Wong & Gerras, 2015). These research findings support the need for cyclic reviews and updates of mandatory training required by AR 350-1 to remove training that has become antiquated and better align training requirements with current threats in multidomain operations.

In addition to unrealistic and unachievable training requirements, inspections required throughout the Army have become multi-layered, redundant, and expend valuable time in preparing for these evaluations, rather than focusing on necessary simulation and real-life training to ensure we can meet our strategic objective to support the National Security Strategy and National Defense Strategy. For example, as an aviation safety officer, in two to three years, I received two significant inspections from FORSCOM and OSHA and four to six moderate inspections from NGB and our local state safety office. This is in addition to a plethora of other ancillary inspections that are related to the Army Safety program, such as Industrial Hygiene and Environmental Inspections.

Countless hours are expended in preparation and pull my focus away from doing my actual job, which is highly challenging to manage based on the extent of regulatory requirements outlined by OSHA, the Army, NGB, and local entities. This is just one example of what is experienced by personnel throughout the Army, which contributes to frustration, burnout, and a force that needs to be truly trained for the current threat environment. In addition to unrealistic training and inspection requirements, the Army, over time, has begun to mandate numerous other requirements that contribute to a lost critical time for Army personnel and essentially have no direct correlation to the current operational environment we are facing and contribute to a reduction in our readiness.

Mission Command is "the Army's approach to command and control that empowers subordinate decision making and decentralized execution appropriate to the situation" (Headquarters, Department of the Army, 2019, p. x). However, this concept does not appear to be utilized by leaders as a technique for prioritizing and reducing extraneous training and administrative requirements at the unit level, nor would it be accepted as a response to the omission of "required items" during reporting requirements or an inspection.

Desired End State

Several actions are required to move towards our desired end state of reducing our non-essential tasks to maximize the time available to better achieve our strategic goals that have been identified based on our current threat environment. Wong and Gerras (2105) concluded, "Until a candid exchange begins within the Army that includes recognition of the rampant duplication, the current culture will not improve." Their recommendations called for "restraint in the propagation of requirements and compliance checks." Additionally, they advised that "policies and directives from every level of headquarters should be analyzed in regard to their impact on the cumulative load on the force" (Wong & Gerras, 2015, p. ix).

In 2018, the Army produced Army Directives 2018-07 and 2018-07-01 through 2018-07-18, "Prioritizing Efforts-Readiness and Lethality," through the G-1 and the G-3/5/7 proponents, which initially appeared

to be a response in the right direction towards our desired end state following the findings from the research study conducted by Wong and Gerras. The purpose identified in the initial AD 2018-07 identified the following:

In order to build a more capable and lethal force, the Headquarters Department of the Army (HQDA) is reducing requirements in brigade and below units. This effort focuses on systematically simplifying, reducing, or eliminating required activities (training and non-training) that consume commanders', leaders', and Soldiers' time that they might otherwise spend building and sustaining combat readiness... All Army units, organizations, and agencies will ensure that they prioritize executing all activities and use time to enhance the readiness and lethality of our formations (Headquarters Department of the Army, 2018, p.1).

However, since this initial rollout, similar directives have yet to be published to advance the Army toward this desired end state. Few publications appear to have been updated because of these Army Directives. For the updated publications, their collateral publications often did not need to bend and continued to cite historical requirements, which are referenced in inspection checklists. Despite the latitude identified in the initial directive for commanders to make decisions at their level for reducing requirements in conjunction with applying risk mitigation, it appears to have yet to gain traction. One could infer this is due to the requirement for Commanders to verify compliance with published requirements, further compounded by a need for updates to associated Army publications and inspection checklists. It appears that the general population within the Army requires additional Prioritizing Efforts Directives, revisions to base publications for modernization for local regulations and inspection checklists to ensure compliance with publication changes.

Strategic Recommendation

Several strategic recommendations and innovative strategies may assist in remedying the current state problem. The Army Force Management Model (AFMM) is a system integration approach to develop and produce trained, modern, and lethal units to facilitate organizational readiness for achieving the mission. The AFMM illustrates the relationship between seven sub-modules and major DoD management processes to facilitate joint operations (U.S. Army War College, 2022). The first strategic recommendation is to apply the "Determine Strategic and Operational Requirements" followed by the "Develop Required Capabilities" modules within the AFMM to drive change through structure and resources to achieve the desired end state in reducing our non-essential tasks to maximize our time available so that we can better achieve our strategic goals. Force Management Capabilities for this initiative are focused on updating policy and doctrine and utilizing existing personnel, facilities, and means of communication within the Army. Reducing training, inspections, and the totality of Army requirements that do not directly support our strategic objectives will free up critical time to facilitate more MOS training at the unit level for increased proficiency and provide additional white space for the development and advancement of capabilities to better oppose our current threats in the multidomain spectrum.

The G1 and the G-3/5/7 proponents need to be re-engaged as part of this decision-making process toward continued reduction in requirements and publication of precise guidance. Feedback from the field must be solicited and returned to these proponents to have a realistic measure regarding the impact of consolidated Army requirements at the unit level. This information is essential to determine the changes required to align with strategic requirements for identified and anticipated threats within our current multidomain operational environment.

An initial recommendation is the publication and wide dissemination of an All Army Activities message (ALARACT) from the G1 and G-3/5/7 soliciting feedback from operational units to review their training, inspection, and other administrative requirements to develop a recommended list of non-essential items for omission, reduction, or modification. Each item will require justification regarding the negative impact on the unit's operational tempo and critical assets, such as time and other supporting arguments on why particular items do not meet the intent of strategic objectives. Options for collecting feedback include utilizing an existing survey generator program or submitting it in a standardized format to a group email or Microsoft Team.

Additionally, focus groups to assist the G1 and G3/G5/G7 should be developed to examine at least three critical areas where Army requirements may be decreased, including training, inspections, and other non-essential administrative or ancillary requirements. Committees should comprise leaders at all levels, especially down to the unit level, with participation from various fields and NCOs to gain the clearest picture of the cumulative impact at the unit level. The totality of requirements in these three concentrated areas must be identified, compared against strategic objectives, and a determination made for which individual requirements may be eliminated, reduced in frequency, consolidated, or redirected to the most appropriate required timeframe, such as only during initial training, pre-deployment, or post-deployment.

Following review, analysis, and determination of requirements moving forward by the G1 and G-3/5/7, the critical changes must be communicated widely throughout the Army to the lowest level to impact unit planning and operations significantly. Given the demonstrated previous success, the G1 and G-3/5/7 are recommended to publish subsequent Prioritizing Efforts-Readiness and Lethality Army directives until changes are incorporated into regulations. The current initial doctrine recommended for review and update includes the following items.

AR 350-1, Army Training and Leader Development, was most recently produced in 2017 and requires extensive updates, especially to Appendix F, Table F-1, and Table F-2, which identify mandatory training and other requirements. Only those directly supporting strategic objectives must be required when determining which training and ancillary requirements require an ongoing mandate. However, one caveat is when a residual risk is identified as high based on risk assessment regarding probability and severity if a particular training or other requirement was to be removed from Army doctrine (Headquarters, Department of the Army. (2021). To ensure training and other required guidance continually correlates to strategic objectives and appropriately manages our operational tempo, it is essential to have ongoing publication of Prioritizing Efforts-Readiness and Lethality Army Directives and a revision cycle to AR 350-1 that immediately follows each publication of the National Security Strategy and National Defense Strategy to facilitate proper alignment and consistency. Additional applicable doctrines that require recurrent reviews and updates include AR 1-201, Army Inspection Policy, AR 20-1 Inspector General Activities and Procedures, and other applicable doctrines regarding inspections and administrative requirements.

Conclusion

The Army's current state of extensive mandatory training and inundation of other requirements necessitates the implementation of strategic recommendations offered in this professional writing to achieve our desired end of reducing non-essential training and tasks within the Army to achieve our strategic goals better and support operational readiness. This may best be achieved by concentrating efforts on threats identified in our National Security Strategy and National Defense Strategy, utilizing AFMM, and re-engaging the G1 and the G-3/5/7 proponents for necessary AR 350-1 updates. A systemic reduction towards essential training only and readiness tasks for the current threat environment will facilitate the best utilization of our most limited resource of time. This will better allow us to focus *Page 33* | *Volume II, Issue 2*

on simulation and real-life training for threats posed throughout multidomain operations to remain combat-ready.

References

- Headquarters Department of the Army. (2018, April 13). Army directive 2018-07 (Prioritizing efforts-Readiness and lethality). https://armypubs.army.mil/ProductMaps/PubForm/ArmyDir.aspx
- Headquarters Department of the Army. (2019). Mission Command: Command and Control of Army Forces. (ADP 6-0). https://armypubs.army.mil/epubs/DR_pubs/DR_a/ARN34403-ADP_6-0-000-WEB-3.pdf
- Headquarters, Department of the Army. (2021). Risk Management (ATP 5-19). https://armypubs.army. mil/ProductMaps/PubForm/Details.aspx?PUB_ID=1024101
- U.S. Army War College. (2022). How the Army runs: A senior leader reference handbook. https:// warroom.armywarcollege.edu/wp-content/uploads/HTAR-19_20.pdf
- U.S. Department of the Army. (2022). Operations: Field Manual 3-0. https://armypubs.army.mil/epubs/ DR_pubs/DR_a/ARN18487-AR_350-1-002-WEB-1.pdf
- Wong, L., & Gerras, S. J. (2015). Lying to ourselves: Dishonesty in the Army profession. United States Army War College Press.



Addressing The Recruitment And Attrition Challenges In The U.S. Army: A Qualitative Study On Manning The Force

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Developing an effective recruiting and retention model requires thoroughly examining methods to enhance the current program. Considering the purpose of my study, a qualitative methodology was chosen as the most appropriate design for exploring why individuals are not joining the Army, reasons for leaving the Army, job satisfaction, and the overall work environment. The study aims to understand the needs and motivations of individuals and soldiers so that the Army can create strategies to attract and retain talent, ultimately leading to a motivated and more effective force.

The problem addressed by this study is that the number of individuals recruited to serve in the U.S. Army has decreased by 41% since 1987 (U.S. Department of Defense, 2024), and approximately 30% of enlisted Soldiers leave the Army within the first 36 months (Marrone, 2020). Reduced recruitment can lead to systemic and operational challenges, such as staffing shortages in critical roles, compromising the force's ability to effectively undertake and sustain Army operations (Bastian & Hall, 2020). With fewer recruits, an urgency exists to field them without adequate training, potentially lowering units' overall readiness and effectiveness (Ben-Ari et al., 2023). As existing personnel are required to take on additional responsibilities or face extended deployments, morale can suffer, potentially leading to higher attrition rates (Phelps et al., 2024). When recruitment and retention levels are insufficient or low, this can lead to a shortage of personnel, which can, in turn, affect the military's preparedness and capacity to carry out its international obligations and respond to various threats and challenges.

Furthermore, it can also strain the existing personnel and resources, potentially impacting morale and overall effectiveness. This could, in turn, undermine the U.S. military's credibility and influence on the global stage. Finally, insufficient recruitment levels can weaken the U.S. military's standing on a global scale, impacting its ability to engage in international relations and defense commitments.

Attrition is another considerable challenge in the U.S. Army. The Army has the highest attrition rate of all military branches; after 36 months, the attrition rate in the Army is estimated to be 30%, compared to 19% in the Marine Corps and 23% in the Navy and Air Force (Marrone, 2020). Challenges with recruitment also appear to be branch-specific. While the U.S. Army's recruitment declined by approximately 15% between 2011 and 2020, the Air Force's recruitment remained the same, and the Navy experienced a 6% increase in recruitment (U.S. Department of Defense, 2024). Like recruitment challenges, attrition from the Army can increase training and replacement costs, operational readiness, and Soldier morale (Hughes et al., 2020; Marrone et al., 2021). The reasons for the Army's decreased recruitment and high attrition rate compared to the other branches are unknown, necessitating further research.

Purpose and Research Questions

The central thesis of this paper is that the U.S. Army should establish an aggressive recruiting and retention strategy to implement Manning the Force. This qualitative descriptive study aims to understand why young people choose not to join the U.S. Army and why Soldiers attrit from the Army within or after their first term. To address this purpose, two research questions were devised:

RQ1: What are the reasons that young people cite for not joining the U.S. Army?

RQ2: What are the reasons Army Soldiers cite for attrition or leaving the Army after one term?

Methodology

This study used a qualitative descriptive research design to address the study's purpose and research questions. The qualitative methodology is used when researchers want to gain individuals' perspectives, opinions, beliefs, and thoughts about the central phenomenon (Tomaszewski et al., 2020). This methodology aligns with the study's research questions of why individuals do not join or leave the Army. A descriptive research design was chosen for this study because this design allows the researcher to describe a central phenomenon from the participants' perspectives (Doyle et al., 2020). The descriptive design is also flexible, allowing researchers to explore a phenomenon using a variety of research methods (Kim et al., 2017). This flexibility in design allowed for a gualitative survey consisting of five survey questions to be designed for the study:

- 1. What is your age?
- 2. What is your gender
- 3. Did you serve in the military? If so, why did you join?
- 4. If you did not serve in the military, why did you not join?
- 5. If you did serve in the military and did not reenlist for a second term, why did you make that choice?

The main method of sampling in this study was snowball sampling. A strength of snowball sampling is its ability to reach hidden subpopulations, such as those required for this study (Leighton et al., 2021). The survey was disseminated through the researcher's professional network for this study. During the recruitment stage, the researcher requested that her colleagues in her professional network send the survey to their professional colleagues' after responses were gathered by email, each individual was assigned a pseudonym to de-identify them in the data reporting.

Collected Data

Participant	Age	Gender	Excerpt from Survey
P1	52	F	"I wanted to join the military when I graduated from high school; however, the
			Desert Storm War was going on, and I got scared."
P2	41	Μ	"Flatfooted and wasn't aware I could get a waiver."
P3	33	F	"Overall, my decision to not join the military is a lack of knowledge about it."
P4	40	F	"Fear of losing my freedom, but I regret it now as an adult."
Р5	24	F	"As a collective, my family members who were enlisted held medical,
			administrative, and direct combat positions, and growing up, I had observed the
			toll and sacrifice that it took on their family and mental health."
P6	24	F	"I didn't want to commit/complete basic training."
P7	27	Μ	"My grandfather and uncles all served in the military, and all of them have various
			conditions that they all suffer from that can be directly traced back to their service
			in the military, including PTSD and loss of limbs."

Table 1: Participants' Reason for Not Joint the Army

Two participants did not have sufficient information. Two expressed fear, one expressed disinterest, and two expressed displeasure with watching their family members suffer challenges post-military.

Two participants joined the military but did not reenlist. P8, an African-American male, said, "The reason I left was due to personal conflict with my NCO, so instead of creating a situation that could adversely affect my enlistment, I separated." P9 felt compelled not to reenlist due to family obligations. P9 said, "I got out after my first term due to going on two deployments back-to-back. I felt I was missing too many important milestones with my young children."

Six participants joined the military and stayed for their careers. These participants had insights that may help improve retention. P10 explained, "They were offering me a chance to have a place to live, eat, and make money at the same time, as well as a chance to go to school if I wanted to. This was a career, not a job, and I already saw the advantages." P11 also expressed the chance to better their life to be critical in their decision. P11 said, "I decided to enlist in the Army because I needed a solid foundation and a career to care for my family." For P10 and P11, the military provided a stable career trajectory. Two participants reported joining for the benefits offered by the military. P12 said, "Educational benefits."

Moreover, P13 said, "I initially joined because I became a dad right out of high school. My mom suggested that I look into the military because of the benefits. The rest is history." The final participant, P14, joined due to patriotism. P14 said, "I have always felt a deep sense of duty and patriotism. Serving my country was a way for me to give back and contribute to our nation." For P14, while the reasons may have varied, each participant derived pleasure from service and remained in the military for their careers.

Researcher's Positionality

After three years in my high school Junior ROTC, I was eager to join the Army. Since my friends were planning to attend college, I also enrolled. However, after two semesters of college, I returned home for the summer, working at a local manufacturing company. It was here that my life took an unexpected turn. The supervisor, a First Sergeant in the local National Guard unit, was instrumental in my decision to join the guard. His influence was so significant that I can confidently say I would not have joined the National Guard without his recruitment. He emphasized the opportunities for personal and professional growth, the chance to serve my country, the benefits and support provided to Soldiers and their families, and the opportunity to impact the world positively. He also shared his experience and the opportunity that the military gave him to have a better life and provide for his family. I have since served for 25 years and enjoy serving my country.

Recommendations

1. Showcase the benefits and rewards of a military career to inspire and motivate potential recruits through effective outreach and marketing campaigns by the Army.

2. Expand the Army's presence and involvement within the community to strengthen ties and build positive relationships.

3. Establish partnerships with outside agencies such as Walmart, Target, and Amazon to collaborate on developing new recruiting technologies and systems, thereby enhancing the military's capabilities. 4. Provide opportunities for career advancement and professional development to maintain Soldiers' motivation and commitment to service.

5. Recognize the critical role of military families in a Soldier's decision to stay in the Army and create a positive and supportive environment for them to show care and empathy.

6. Increase the participation of military bands in the community, allowing Soldiers to share their positive stories and experiences.

7. Invite students, family members, retirees, and Soldiers already serving at events such as the Twilight Tattoo to foster a sense of community and camaraderie.

8. Focus on leadership development to ensure that today's leaders are equipped to become future leaders.

Conclusion

After conducting the study, it was evident that lack of knowledge about the military, fear, and displeasure were the primary deterrents for potential recruits. Based on these findings, developing an effective recruiting and retention program is crucial for the Army to address these challenges. Soldiers serving in the Army should tell their stories and show individuals what success looks like in the Army. Insufficient or low recruitment and retention levels can have a profound impact, leading to a shortage of personnel. This, in turn, can severely affect the military's readiness and capacity to fulfill its international obligations and respond to various threats and challenges. Ensuring the United States has sufficient qualified military personnel is a matter of national security.

Implementing the study's recommendations will enable the Army to formulate strategies within "Man the Force" that will attract new talent and retain existing Soldiers. By doing so, the Army can build a motivated and more effective force.



References

- Bastian, N. D., & Hall, A. O. (2020). Military workforce planning and manpower modeling. In N. M. Scalla & J. P. Howard, III (Eds.), Handbook of military and defense operations research (pp. 83–112). Chapman and Hall/CRC.
- Ben-Ari, E., Rosman, E., & Shamir, E. (2023). Neither a conscript army nor an all-volunteer force: Emerging recruiting models. Armed Forces & Society, 49(1), 138–159. https://doi. org/10.1177/0095327X211048216
- Doyle, L., McCabe, C., Keogh, B., Brady, A., & McCann, M. (2020). An overview of the qualitative descriptive design within nursing research. Journal of Research in Nursing, 25(5), 443–455. https://doi.org/10.1177/1744987119880234
- Hughes, M. G., O'Brien, E. L., Reeder, M. C., & Purl, J. (2020). Attrition and reenlistment in the Army: Using the Tailored Adaptive Personality Assessment System (TAPAS) to improve retention. Military Psychology, 32(1), 36–50. https://doi.org/10.1080/08995605.2019.1652487
- Kim, H., Sefcik, J. S., & Bradway, C. (2017). Characteristics of qualitative descriptive studies: A systematic review. Research in Nursing & Health, 40(1), 23–42. https://doi.org/10.1002/nur.21768
- Leighton, K., Kardong-Edgren, S., Schneidereith, T., & Foisy-Doll, C. (2021). Using social media and snowball sampling as an alternative recruitment strategy for research. Clinical Simulation in Nursing, 55, 37–42. https://doi.org/10.1016/j.ecns.2021.03.006
- Marrone, J. V. (2020, April 28). Predicting 36-month attrition in the U.S. military: A comparison across service branches. RAND Corporation. https://www.rand.org/pubs/research_reports/RR4258.html
- Marrone, J. V., Zimmerman, S. R., Constant, L., Posard, M. N., Kidder, K. L., Panis, C., & Jensen, R. (2021). Organizational and cultural causes of army first-term attrition. RAND Corporation.
- Phelps, A. J., Adler, A. B., Belanger, S. A. H., Bennett, C., Cramm, H., Dell, L., Fikretoglu, D., Forbes, D., Haber, A., Hosseiny, F., Murphy, D., Nazarov, A., Pedlar, D., Richardson, J. D., Sadler, N., Williamson, V., Greenberg, N., & Jetly, R. (2024). Addressing moral injury in the military. BMJ Military Health, 170(1), 51–55. https://doi.org/10.1136/bmjmilitary-2022-002128
- Tomaszewski, L. E., Zarestky, J., & Gonzalez, E. (2020). Planning qualitative research: Design and decision making for new researchers. International Journal of Qualitative Methods, 19, Article 1609406920967174. https://doi.org/10.1177/1609406920967174
- U.S. Department of Defense. (2024). DoD personnel, workforce reports & publications. Defense Manpower Data Center. https://dwp.dmdc.osd.mil/dwp/app/dod-data-reports/workforce-reports

Progress on the Evolution of the Warrant Officer Education System and an Uncertain Future

Dr. Leonard S. Momeny, Ed.D., CW5 (Ret), U.S. Army, Aviation

Editor's note: Thoughts and assessments in this work are those of the author and are not meant to reflect the organizational opinions of the US Army Warrant Officer Career College, the U.S. Army Aviation Center of Excellence, or the U.S. Army.

Introduction

In issue one of Strength in Knowledge: The Warrant Officer Journal, Colonel McHugh and Chief Warrant Officer 5 Momeny discuss a modernization effort that was ongoing within the common core military education for the Army Warrant Officer (2023, p. 6-8). The authors discussed the coming modernization of Warrant Officer education as a byproduct of the Army introducing a new keystone doctrine, Field Manual (FM) 3-0 Operations (2022), better known to all by now as multidomain operations. However, the authors were unable to discuss at the time what this modernization might look like in a definite sense and eventual impacts on the development of current and future students undertaking the Warrant Officer Candidate Course. Additionally, the authors were unable to articulate the implications that changing the foundational course would have on the greater Warrant Officer Education System and the cohort in general. The following article outlines what has changed in the Warrant Officer Candidate Course, from class content to capstone, and how those differences can impact the future of the Army Warrant Officer, the Warrant Officer Education System, and the subsequent holistic development of students.

Origins of a New Beginning

The recent call for change in the nature of Warrant Officer education did not initially begin with Warrant Officer Candidates and instead was originally focused on Warrant Officer Senior Service Education (WOSSE), specifically curricula and assessments. The question was posed in an issue of the Newsliner, the magazine of the US Army Warrant Officer Association, on whether or not the design of the course was effective, or more specifically did the course meet the needs of both the senior Warrant Officer and their commanders with respect to evolving operational needs:

"If nothing else, the WOSSE course must achieve relevance to both the future CW5 and meet the needs of both current and future commanders. WOSSE must continue to educate an officer to create value for senior leaders and organizations by enabling highly effective mission execution. The current course meets the needs of senior Warrant Officers employed by current senior leaders. Does it prepare senior Warrant Officers to meet the needs of future senior leaders, within future multi-domain operations, when the Warrant Officer cohort must do better to attain appreciable relevance with respect to the prescribed vision from the Joint Chiefs of Staff" (Momeny et al, 2022, p. 8).

The authors of the article Reimagining Warrant Officer Senior Service Education (2022) were referencing the call by the Joint Chiefs of Staff (2020) to ensure the "need for PME (Professional Military Education) and other talent management systems to work in unison to better identify and develop strategically minded joint officers...capable of strategic thought, which includes holistic critical, creative, and systems thinking" (Momeny et al., 2022, p. 8). Achievement of this sort in PME has been *Page 40* | *Volume II, Issue 2*

identified to require curriculum and experiences that are "creative, self-guided learner experiences" (Momeny et al., 2022, p. 8). Similar research has been formally presented elsewhere by Khachadoorian, Steen, and Mackenzie (2020) in their article, "Metacognition and the Military Student: Pedagogical Considerations for Teaching Senior Officers in Professional Military Education." Those authors and researchers reported on coursework at the War College level that produces opportunities for student-driven activities focusing on self-awareness, decision-making, and critical thinking (Khachadoorian et al., 2020). However, while strong presentations of such concepts are compelling, they hardly naturally extend toward the outcomes-based education of an entry-level course such as the Warrant Officer Candidate School, or WOCS. After all, the WOCS course attempts to both educate and acculturate the former enlisted Soldier into the ranks of the Officer.

ow, WOSSE has yet to undergo a full modernization, save for the eventual capstone event that has ultimately resulted in the creation of the journal, *Strength in Knowledge*, and the subsequent publication of rarely heard and cultivated ideas from senior Army Warrant Officers. The additional inspiration provided at this point brought about a more concerted approach to explore outcomes-based education focused upon developing an eventual WO1 that could better matriculate to the eventual battalion-level position. After all, before you adjust the highest level of education within a specific system it is necessary first to address gaps in the foundational course. Qualitative and quantitative research determined key points about the nature and level of appreciation for WOCS curriculum prior to modernization. This resulted in relevant and current data informing any and all adjustments to the curriculum and ultimately led to the course that is present today.

WOCS AND OTHER COURSE DESIGN EVOLUTIONS

WOCS today looks nothing like that of past iterations. Students are no longer assessed via multiplechoice tests and instead find themselves writing. The development of written communication skills has been identified as critical as it allows for a more holistic assessment of a student's ability to understand and apply learned information. Additionally, this move to more writing assignments aligns well with the Chief of Staff of the Army's (CSA) initiative to once again invest in the Army's ability to better write about the profession of arms, also known as the Harding Project. Other opportunities afforded to WOCS students are more in-depth education on doctrine, deeper sessions on military decision making process (MDMP), knowledge management, and organizational development. There has also been an effort to cultivate a reasonable approach toward a student-led course, seeking to put future officers consistently in a decision-making space. The process is still evolving, but the Warrant Officer 1 coming to the Army's current units is far better prepared in the realm of common core knowledge than ever before.

The next major evolution currently underway at the Warrant Officer Career College is the adjustment of modern courses and topics to the new WOPME continuum. Name changes aside, e.g., Intermediate Level Education to Advanced Course, the curriculum found within each element of common core education courses, to include elements of distance learning, are being modernized. Courses will start to discuss topics such as technical writing, research, data literacy, and application of emotional intelligence in the context of leader communication. The reality is that all aspects of the Warrant Officer Career College are striving to modernize and better educate the cohort on critical aspects of common core education. Still, a large swath of these efforts continue and so remains the uncertain future within the greater context of Warrant Officer Professional Military Education.

AN UNCERTAIN FUTURE

Why state there is an uncertain future? In a move comparable to the Special Forces branch so many years ago, the Aviation branch recently separated from common core PME in an effort to establish their independent courses external to the proponent for Warrant Officer common core education. Aviation Warrant Officers will still attend the Warrant Officer Candidate Course prior to flight school, but the move to avoid attending the other levels of current common core PME is fraught with drawbacks. Three potential drawbacks are the gap in shared experience from the members of the movement and maneuver warfighting function, the absence of aviators in discussions on Force Management and Acquisitions, and the inability to learn from highly educated and seasoned faculty. Whether realized or unrealized, the separation has already sent ripples across the entirety of the cohort and potentially cast doubt upon the efficacy or value of the education received at the Warrant Officer Career College.

First, the act of attending PME with members from outside your branch is critical in the Warrant Officer Cohort, and not just for aviators. All Warrant Officers in attendance have an opportunity to learn in-depth aspects of operations from representatives external to their war fighting function. It seems irrelevant, but even something as simple as meeting other Warrant Officers is critical to the development and education



of the cohort as a whole. After all, our PME courses are quite short. The current ILE is only 5 weeks in duration, while SSE is just 4 weeks. Part of the reason the courses are allowed to be so compact is due to the benefit of so many diverse backgrounds coming together and sharing knowledge during exercises and student presentations. One of major positives identified, without fail, by all attending the ILE and SSE course is networking, as it helps supplement the course material with the shared experience of others.

Aviators are sure to be seen as a significant absence in the SSE course. One of the areas commonly discussed in the SSE curriculum is Force Management and Total Army Analysis. Aviators at the CW4 and CW5 ranks likely benefit greatly from discussions in this course, as the Aviation Branch is currently experiencing notable evolution due to the Army Future Vertical Lift (FVL) program and changes to unmanned aircraft technology as a

result of the war in Ukraine. Aviators, no matter their compo, will miss discussing the nuance of the acquisition process, force tailoring, and DOTMLPF-P matters with officers from assignments such as the Pentagon, the National Guard Bureau, and Army Futures Command. After all, when an aviator hits CW4 or 5, they prefer to remain in a Combat Aviation Brigade, but can easily serve in positions at Human Resources Command, the Pentagon, Army Futures, Directorate of Training and Doctrine, and PM Offices. Learning from the experiences of others can supplement the aviator's vast operational knowledge before moving into key positions in force generation, advisement on policy, and acquisition.

Lastly, the Warrant Officer Career College is staffed with professional instructors with various levels of expertise from across the Army and the associated branches hosting Warrant Officer positions. The experienced faculty have become well versed in contextualizing the standard topic areas of common core officer education into relevant discussion for Warrant Officers. Some have taught at civilian universities, the Command and General Staff College, and schools at various Centers of Excellence

across the force. These faculty are currently diligently working to update curriculum across the common core portfolio and are certain to introduce phenomenal updates in each course, just as experienced in recent WOCS development.

Of note, there is access to specific assignments where faculty coach SSE students through the crafting of professional papers, allowing them to submit for a peer-review from others in the class, and finally submit for publication into *Strength in Knowledge: The Warrant Officer Journal.* That work submitted to that journal is then shared via Army University with the whole force. Readers from outside the course can submit for publication. However, the act of topic and thesis shaping, peer-review from fellow CW4s and CW5s, and the dedicated time to simply write a paper in a learning environment while surrounded by diverse experience is absent from those not in attendance at the course.

Closing Thoughts

The purpose of this article is to provide an overview on current efforts shaping Warrant Officer common core education. The faculty at the Warrant Officer Career College continue to make improvements to WOCS curriculum, all the while working on updating and modernizing course materials for the Advanced Course (soon to be Intermediate), ILE, and SSE. The coming absence of aviators from ILE and SSE, while only now occurring, promises to detract from the experiences of other officers in the cohort and potentially host drawbacks to their own development. Warrant Officer education clearly remains an area experiencing fluctuation and change, but the most important element to discuss is how we sustain and potentially even invest greater effort into the education of our cohort. The future fight of Multidomain Operations is systems-centric, and the success of the Army may be directly tied to the technical experts and integrators of those systems. Investing in Warrant Officer education is necessary and cannot continue to be overlooked. Warrant Officers remain a critical link to victory on the battlefield.

Finally, Warrant Officer professional military education must be viewed in a positive light by both members of the cohort and greater officer corps. Topics currently taught at all levels of education have been assessed as valuable and necessary to study in other courses across the officer corps portfolio, and thereby perceived as being just as valuable for Warrant Officer development. As members of the greater officer corps, and subject to the same laws that govern education of those considered regular line officers, Warrant Officer education must maintain rigor, relevance, and value to all in attendance and those that benefit from student development. An educated force is a professional force and even common core education is necessary in the development of excellent Warrant Officers. If for some reason you do not like the curriculum or model being utilized, I encourage you to become a faculty member at the college and become the change that might be needed.

About the Author

Leonard Momeny, Ed.D., U.S. Army, is a Chief Warrant Officer 5 is senior faculty at the Warrant Officer Career College, Fort Novosel, Alabama. He is currently transitioning from active duty to retirement and will finish with over 26 years of service on 30 September 2024. Leonard holds degrees from Central Texas College, Southwestern College Kansas, American Military University, and Liberty University. Leonard finished his doctorate with Liberty University in 2020 and currently serves as adjunct faculty with Liberty University and Purdue Global. Leonard is a Master Army Aviator and a graduate of Ranger School. To read more from this author, visit https://orcid.org/0000-0002-5002-3919.

REFERENCES

- Chairman of the Joint Chiefs of Staff Instruction (15 May 2020). Officer Professional Military Education Policy (OPMEP).
- Khachadoorian, A. A., Steen, S. L., & Mackenzie, L. B. (2020). Metacognition and the military student. Pedagogical considerations for teaching senior officers in professional military education. *Journal of Military Learning.*
- McHugh, K. E. & Momeny, L.S. (2023). Modernizing Common Core Military Education for the Army Warrant Officer. Strength in Knowledge: The Warrant Officer Journal, 1(1). https://www. armyupress.army.mil/Portals/7/WOCC-Journal/2023-Journals/Strength-in-Knowledge-Volume-1-Issue-1.pdf.
- Momeny, L.S, Parker, C., & Mathews, K. (2022). Looking Through Athena's Shield: The Case for the Missing Philosophy of Army Education. 2022 Army University Learning Symposium. (researchgate.net)
- Momeny, L.S., Steddum, J., & Grandinetti, T. (2022). Reimagining Warrant Officer Senior Service Education. *Newsliner*.
- U.S. Department of Army. (2022). FM 3-0, Multidomain Operations.

Editor's Note: Strength in Knowledge: The Warrant Officer Journal congratulates Dr. Leonard Scott Momeny, Ed.D, on his retirement from the U.S. Army after 26 years of faithful military service. Dr. Momeny is the founding editor the journal; his lasting contributions to this journal, the U.S. Army Warrant Officer Career College, the Aviation branch, and the United States Army will continue to shape the greater body of knowledge, military expertise, and honorable service for many years to come.

Thank you for your service!



Book Review

A review of *David and Goliath: Underdogs, misfits, and the art of battling giants.* presented by Mr. Mark Davenport, Department of Doctrine and Strategy, U.S. Army Warrant Officer Career College

Written by Malcolm Gladwell. Published by Little Brown Company, Hachette Book Group, New York, N.Y. 2013. 305 pages.

After reading the book, *David and Goliath, Underdogs, Misfits, and the Art of Battling Giants*, by Malcolm Gladwell, I started thinking about the David and Goliath events throughout in my reading experiences and experiences throughout my lifetime. Events like the New York Giants defeating the undefeated New England Patriots in Superbowl XLII, Isreal defeating its three Arab neighbors in six days in the 1967, The success of the Montgomery Bus Boycott in 1955, and President Carter's presidential election victory in 1976. The question most asked by experts and lay persons alike after each of these events was how did we get this so wrong? What did we miss? This book allowed me to see some of my faulty ways of thinking. They all boiled down to critical thinking or more precisely the lack of critical thinking.

When I look up the term critical thinking on the internet, I came across a great definition. It states that critical thinking, "...is the ability to effectively analyze information and form a judgement. To think critically, you must be aware of your own biases and assumption when encountering information and apply consistent standards when evaluating sources." Malcolm Gladwell, in this book, looks at nine situations from history (some of them obscure history) and begins to take apart the stories told in history to find the assumptions and misconceptions we used to construct the stories in the first place and really explain how in each case the Davids of the world really defeated the Goliaths.

We all have heard the biblical story of David and Goliath; how David overcame the enormous odds to defeat the superior Goliath in battle. Was David truly the underdog or were our assumptions incorrect? Looking at this narrative with critical eyes may reveal new insight into why David had an advantage over Goliath.

How can a twelve-year-old girls basketball team, from California, with no real basketball skills and a coach who never coached, let alone played basketball before, end up in the national championship game of the Junior Basketball League? Again, Malcolm Gladwell weaves together an interesting story to help explain how our assumptions mislead us to think this team had a major disadvantage.

Is going to a top tier college provide a student with the best possible chance to succeed or again is this a disadvantage? If having dyslexia is a bad thing, then why did some of its victims succeed so spectacularly?

These are some of the stories the author uses to challenge the reader to apply critical thinking to everyday topics. Malcolm Gladwell's ability to tell a great story will have you reading this book for the sheer enjoyment of it; the facts and logic that unravel our tightly held beliefs and assumptions will just be a bonus. Once you read this book, you will find yourself constantly challenging your assumptions in your military profession and in everyday life. I recommend this book.

Warrant Officer in History—Chief Warrant Officer Manford L. Kleiv, Aviation

By Dr. Leonard S. Momeny, Ed.D., CW5 (Ret), U.S. Army, Aviation

*Editor's note: This biography was adapted from a primary resource at https://valor.militarytimes.com/hero/24463.

Many readers of the Warrant Officer Journal will most likely hear the name Kleiv and think back to the US Army Warrant Officer Career College (USAWOCC) campus in Fort Novosel, Alabama. Today, Kleiv Hall hosts Warrant Officer Intermediate Level Education and Warrant Officer Candidate students. Additionally, the building houses the USAWOCC History Department and various artifacts from the past, such as original candidate class guidons dating back to the mid-80s. If you were to walk in the hall today, you are likely to spend time looking at those guidons, and various prints adorning the walls and potentially miss the history of the building's namesake, which sits on a corner wall near classrooms five and six.



Manfred Kleiv was born in Whitefish, Montana, and served his nation for twenty years. When World War II began, Manfred Kleiv was a young man hungry to serve his country. CWO Kleiv did not just serve in WWII, he was a part of the early Army Ranger Battalions, the foundation of what would become America's eventual special operations forces. The Rangers of WWII are renowned for their heroism, fighting across Europe and in remote areas of the Pacific. The Rangers of that period are memorialized in some ways in the modern classic, Saving Private Ryan. Kleiv was cut from that cloth and earned his Combat Infantryman's Badge, fighting with some of the bravest our nation had to offer then and now.



By 1964, CWO Kleiv was nearing retirement and a return to his beloved Montana, where he hoped to finish the rest of his days. Instead, CWO Kleiv found himself in Vietnam, a then relatively unheard of country in southeast Asia. On October 9, 1964, CWO Manfred Kleiv's UH-1 came under concentrated enemy fire and ended up on the ground with the enemy rapidly approaching. Kleiv would not survive the encounter but was awarded a Silver Star for the following actions:

The President of the United States of America, authorized by Act of Congress, July 8, 1918 (amended by act of July 25, 1963), takes pride in presenting the Silver Star (Posthumously) to Chief Warrant Officer Manford Lloyd Kleiv, United States Army, for gallantry in action while engaged in military operations in Vietnam on October 9, 1964. Chief Warrant Officer Kleiv was performing his duties as an Instructor Pilot of an Army UH-1B helicopter in connection with a support mission in the Republic of Vietnam

when a hostile force shot down his aircraft. Immediately after the initial impact of the aircraft, he evacuated the crew and established defensive positions around the downed helicopter while exposing himself to the advancing enemy troops. Despite the hail of heavy small arms fire, he returned to the aircraft, made an emergency distress call, and then covered the crew members as they maneuvered to defilade positions. Assured that the crew members were well covered, he again returned to the aircraft, repeated the distress call, and, while attempting to rejoin the crew, was mortally wounded. His fortitude, courageous actions, and deep concern for his crew members enabled them to be evacuated from the

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area by helicopter. Chief Warrant Officer Kleiv's conspicuous gallantry is in the highest traditions of the United States Army and reflects great credit upon himself and the United States Army.

Kleiv laid down his life for his fellow Soldiers. The remainder of the crew was transported to safety, and Kleiv would eventually travel home to his beloved Montana, where he now rests. CWO Manfred Kleiv represented the very best of us, and he embodied the ideals and values of both Army Rangers and Warrant Officers.

**The image is from the Vietnam Veterans Memorial Fund





Faculty Spotlight - Mr. Mark Davenport

Department of Doctrine and Strategy

Mr. Mark G. Davenport is currently an instructor in the Doctrine and Strategy Department at the Warrant Officer Career College, Fort Novosel, Alabama. He comes to the position with a wealth of knowledge and experience, having been an instructor for over 20 years and having a 20year career as an officer in the United States Army as a logistics officer.

Mr. Davenport was commissioned into the Quartermaster Corps in 1980 from the Old Dominion University ROTC program. He served in divisional unit sustainment assignments ranging from platoon leader to battalion operations officer in three different divisions. He served as a brigade S-4 in several non-divisional corps and army level units including a military intelligence brigade, a engineer brigade, and a military policy brigade. He has experience as an Observer/Coach Trainer (OC/T), held staff positions in several joint and combined assignments and has teaching experience



teaching ROTC at The Citadel, the Quartermaster Center and School, and the Army Sustainment University.

Mr. Davenport has attended the U.S. Army Quartermaster Basic Course, the U.S. Army Quartermaster Advanced Course, the U.S. Army Combined Arms and Services Staff School and has a Masters of Public Administration (MPA) from Strayer University.



Call for Papers and Submission Guidelines

Strength in Knowledge: The Warrant Officer Journal is a professional bulletin of the United States Army produced by the faculty and staff working at the United States Army Warrant Officer Career College (USAWOCC). The editorial staff produces the quarterly publication in effort to improve all areas of the Warrant Officer's education, whether common core or technical in nature. This resource is intended to inform and shape organizational systems in the greater profession of arms through the sharing of key insights and lessons learned.

We continuously accept manuscripts for rolling publications and subsequent Journal editions. The journal invites practitioners, researchers, academics, PME students, and military professionals to submit manuscripts that address the issues and challenges of military education and training, training development, doctrine (whether specific data from manuals or discussion of concepts), systems warfare, Army modernization and other subjects relevant to the profession of arms. Submissions related to technical areas of various Warrant Officers' specialties will be considered on a case-by-case basis. Book reviews of published relevant works are also encouraged.

Submission Guidelines

Submissions should be between 1,500 and 5,000 words and supported by research, evident through the citation of sources. Scholarship must conform to commonly accepted research standards such as described in The Publication Manual of the American Psychological Association, 7th edition. For resources on writing in approved APA format simply reach out to USAWOCC. Book reviews should be between 500 to 800 words and provide a concise evaluation of the book and its relevance to the professional Warrant Officer or current fight. The editors recommend using *Professional Writing* (2024) available at: https://armyuniversity.edu/cgsc/cgss/DCL/files/ST_22-2_US_Army_CGSC_Writing_Guide_March_2024.pdf

Articles and manuscripts must be submitted in Microsoft Word, or compatible fomat, with separate, author owned or creative commons licensed picture files and a 100-150 word author's note. We willpublished articles individually and/or on a quarterly schedule. For additional information or to submit an article, email to **wo_journal@army.mil**.

Order of Eagle Rising Society

To learn more about the modern warrant officer explemiifed by lifelong leaders of character, read about the inductees of Order of the Eagle Rising Society at: https://sites.google.com/view/eaglerising/home.





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