TEACHING PROFESSIONAL MILITARY EDUCATION USING GENERATIVE ARTIFICIAL INTELLIGENCE

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ABSTRACT

Artificial generative intelligence (GenAI) was used in the development and delivery of the U.S. Army Command and General Staff course, *Contested Logistics in the Homeland*, including course development, creation of reading summaries, and design of tabletop exercise scenarios. The use of GenAI software increased the amount of content instructors delivered, supported the development of a framework for practical exercises, and made it easier to update the course.

Keywords: *GenAI*, *professional military education*

DISCLAIMER

The views and conclusions expressed in this document are those of the author, developed with freedom of expression in the academic environment of the Army University and the U.S. Army Command and General Staff College. They do not reflect the official position of the U.S. government, Department of Defense, United States Department of the Army, or the U.S. Army Command and General Staff College.

Generative artificial intelligence (GenAI) was utilized to develop and deliver the *Contested Logistics in the Homeland* (A431) course at the U.S. Army Command and General Staff College. GenAI is a rapidly evolving technology that can create original content, including texts, images, and code, by identifying and "learning" patterns and relationships from large data sets and bodies of knowledge based on user inquiries and prompts. *Contested Logistics in the Homeland* is an elective course in the U.S. Army Command and General Staff College Course (CGSOC). U.S. Army majors must complete CGSOC to qualify for promotion to lieutenant colonel.

Contested Logistics in the Homeland features a tabletop exercise that requires students to deploy a military division (approximately 20,000 soldiers and 5,700 pieces of equipment) from the homeland to an overseas location while contending with an adversary's interference (contesting) of the deployment. The course covers the current operating environment, where adversaries contest U.S. military deployment activities. Changes in military doctrine are constant, and utilizing GenAI can help develop and implement these changes into professional military education programs, such as those involving contested logistics (Reece, 2024).

GenAI can also help instructors incorporate new policies and doctrines into instruction more quickly and can even serve as a "creative partner" (McGrath, 2025). When used appropriately, it

can provide creative solutions for curriculum development. It can assist with selecting and organizing content to facilitate effective teaching and learning. It can also help students gather and synthesize large amounts of information rapidly while planning and conducting operations (Dickinson, 2023).

GenAI proficiency requires a significant time commitment and a desire to learn. Users must learn to "prompt" the AI tool iteratively to produce their desired outcomes. Humans must be involved in all processes. This is referred to as "human in the loop." GenAI can "hallucinate," generating false or misleading outputs; the human in the loop monitors and corrects the tool as needed. GenAI will play a significant role in advancing professional military education. As with any innovation, the acceptance of new ideas or technologies is driven by early adopters. The success of early and mid-term adopters encourages laggers to embrace new ideas and innovations. The case for adoption into military education involves utilizing technology to generate course materials, including developing a curriculum, designing threat scenarios, and summarizing readings with accompanying discussion questions.

DEPARTMENT OF SUSTAINMENT AND FORCE MANAGEMENT, U.S. ARMY COMMAND AND GENERAL STAFF COLLEGE

The Joint Staff oversees professional military education, including requirements for all branches to be trained on similar topics across services. The U.S. Army Command and General Staff Officers Course (CGSOC), located at Fort Leavenworth, Kansas, admits about 1,200 students each year for a 10-month graduate-level program. The students include roughly 800 U.S. Army majors, around 250 from other U.S. military services, and 120 international military students from more than 90 countries.

CGSOC provides Joint Primary Military Education (JPME) Level 1 education to attendees. Students may qualify for the Military Operational Studies (MOS) master's degree if they maintain a grade point average of "B" or higher. The Higher Learning Commission accredits CGSC. The College resides in the Midwest census region.

*Contested Logistics in the Homeland (*A431) is housed in the Department of Sustainment and Force Management. The department helps develop competent military leaders by delivering sustainment and force management education at CGSOC, preparing them to win large-scale, multi-domain combat operations.

CONTESTED LOGISTICS IN THE HOMELAND

Contested Logistics in the Homeland is an elective course, fulfilling one of the eight elective general credits required for graduation from CGSOC. Contested logistics doctrine posits that adversaries and enemies will surveil and contest U.S. military operations, including force protection operations in the homeland. The primary course goal is to expose rising field-grade

officers (Majors) to potential threats during a homeland force projection operation and to teach them how to respond to these threats. The course was delivered in Term I (Third Semester), April 2025, in a face-to-face modality. It was developed using GenAI for scenario design, curriculum development, summarization of reading materials, and generation of discussion questions. It was offered a second time in Term II (Fourth Semester), May 2025, with changes made based on feedback from Term I.

CamoGPT

The GenAI tool used to assist in this course was CamoGPT. CamoGPT is a chat-based application that delivers GenAI, a scalable large-language model tailored to the Army's needs. It is the authorized GenAI tool for course development at the CGSOC. The Cyber Center of Excellence initiated a proof-of-concept for CamoGPT, a GenAI application designed to enhance productivity and operational readiness (Tradewinds, 2025).

CameGPT's knowledge base is built upon a massive dataset of publicly available information, excluding classified material. The Army Artificial Intelligence Integration Center hosts the tool. It operates within a secure network environment and is authorized to process data up to the confidential controlled information level (Pharathikoune, 2025). CamoGPT operates on secured U.S. Army platforms. It is an open-source implementation that requires refining. To date, it has not been trained on user chats or Army-specific data beyond the initial training set. This model requires further review by authorized U.S. Army personnel; it is designed to keep a "human in the loop" to review the work the model completes. The human-in-the-loop methodology ensures oversight for CamoGPT outputs. The human element is essential because GenAI can hallucinate, fabricating false information. The human in the loop helps reduce and mitigate the errors that CamoGPT might produce. The CamoGPT application uses retrieval-augmented generation: users can upload files (documents, reports, etc.), and it identifies the most relevant sections to inform its responses. CamGPT cannot assign or validate classified information, nor can it process personally identifiable information (PII). It can, however, understand PII that may be inadvertently submitted into its system for processing.

Contested Logistics in the Homeland

Contested Logistics in the Homeland explores the emerging doctrine of contested logistics, which describes the environment in which the armed forces engage an adversary that poses challenges across all domains (land, sea, air, cyberspace, and space) and directly targets logistical operations, facilities, and activities. The course focuses on homeland activities, from fort to port. Peer adversaries, by definition, possess capabilities in air, space, and cyberspace to interdict logistics within the homeland. The course is 40% lecture, 30% group work, and 30% practical exercises. The average workload was 45 minutes of reading for each class session. This course features several practical exercises that were developed as scenario-driven tabletop exercises.

The first practical exercise was based on emerging literature on contested logistics in the homeland. It included a multi-day, multi-iteration exercise. The scenario evolved over a timeline provided to the students, in which they were tasked, iteratively, to move a division under prescribed circumstances. This practicum allowed students to interact with a notional enemy that interdicted a U.S. Army division as they attempted to project force to an overseas location through various means, thereby delaying, slowing, or denying their progress. Multiple iterations of the scenario presented students with complex problems to consider and work through, with the results of their decisions carried over to subsequent exercise scenarios. The GenAI tool made suggestions for this practical exercise, which were accepted. Some of the suggestions were not accepted because they fell outside the course's parameters.

The second practical exercise prompted a red cell (adversary) to interfere with a U.S. Army division's force projection operations from the homeland. The problem set was depicted as a *wicked problem*. Wicked problems are a class of social-systems problems that are ill-formulated, characterized by confusing information and multiple decision-makers (Lönnegren & Pöck, 2021). The exercise leveraged the attributes of the wicked problem to challenge students to think outside prescribed policy and practice. The exercise included multiple conflicts across organizational echelons and various issue types, all of which may impact a unit's ability to accomplish its mission. The hypothetical intrusions were designed to delay, slow down, or stop the actual force projection of the U.S. Army division from its home station to an overseas location. The exercise also included Defense Support to Civil Authorities (DSCA) elements, such as the impacts of a hurricane at the port facility, as well as homeland defense interdictions that the students had to overcome or mitigate. Within the scenario, time was provided for each action and reaction to the scenario injections. Students alternated from red (enemy) to blue (friendly) cells to experience the scenario from both sides.

GenAI was also used to summarize several readings and provide discussion questions. Taking several 100- to 150-page readings and condensing them into manageable four- to five-page executive summaries with discussion questions helped facilitate the course's conduct. This allowed the students to cover more material and achieve a deeper understanding of the nuances and implications of multiple factors on the mission, given the division's force projection to an overseas location. The course is 24 contact hours, equivalent to 1.7 semester hours; therefore, there is not much time to cover large amounts of material in or out of class, given the course's construction and students' overall course load. Using the GenAI platform to summarize lengthy readings enabled students to access more information on the subject.

COURSE ASSESSMENT

Students who complete *Contested Logistics in the Homeland* understand that the homeland is no longer a haven free of adversarial action. State and non-state actors have the capability and will attempt to disrupt the deployment of U.S. military logistical operations and force deployments in the homeland. Students develop the ability to identify adversarial activity in the homeland and deploy appropriate countermeasures in cyber and physical spaces. Final course grades are

determined by class participation (30%) and practical and tabletop exercises (70%) that focus on problem-solving. The capstone project includes a practicum that requires students to resolve adversarial attacks on a U.S. Army division projecting from "fort to port."

Upon completing the course, students from the first iteration were surveyed to gauge its effectiveness, specifically whether it met their expectations. All 12 students responded that they either strongly agreed or agreed that the course met their expectations, identified facts and assumptions related to contested logistics in the homeland, and discussed key tasks associated with these logistics. Student recommendations included adding more information on the defense industrial base and homeland infrastructure; Title 10 active-duty and civilian security integration into logistical and transportation operations within the homeland; and information on how the U.S. Army plans to mitigate adversarial interference in logistical operations within the homeland. The students' concerns and recommendations were addressed in the second iteration of the course. Finally, future course offerings will include evolving Department of Defense challenges, such as the increased use of U.S. military forces in homeland border security and law enforcement.

CONCLUSION

The GenAI tool CamoGPT is a valuable resource for developing higher education courses and enhancing student success. CamoGPT contributed positively to the development and delivery of CGSOC's *Contested Logistics in the Homeland* course. Course instructors and students navigated large amounts of data and related information, leveraging CamoGPT to design and participate in high-level tabletop exercises. The preliminary results suggest that CGSOC, and higher education in general, should leverage GenAI for curriculum and course development and delivery.

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