

MODSIM Abstracts

Title

GenAI-Enabled Courseware Modernization: Transforming ISD Processes to Strengthen Force Readiness

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Abstract (500 words max):

The Department of Defense (DoD) faces an operational challenge in ensuring training content is relevant, effective, and current. Modernizing existing and developing new training content remains a labor-intensive process, requiring Instructional System Designers (ISDs) and Subject Matter Experts (SMEs) to manually extract learning objectives, design instructional sequences, and prepare content for Learning Management System (LMS) deployment in traditional school-house settings or format for at-the-edge operational deployment for just-in-time-training. Furthermore, legacy training does not easily respond to rapidly changing requirements or new technical information gleaned during operational use. As a result, the DoD spends billions in cost and manpower resources annually just to keep pace with evolving training demands, which leads to slower delivery of critical skills and potential delays in readiness cycles.

To overcome this problem, many have turned to Generative Artificial Intelligence (GenAI) applications to assist with developing and maintaining courseware and training artifacts. With the recent technological boom and ease of access of AI tools (e.g., Microsoft Copilot, ChatGPT, Gemini), daily active users total in the tens of millions. In this vein, ISDs are using GenAI agents to assist with content creation automation. While GenAI shows promising potential to accelerate content creation, while maintaining instructional quality, most ISDs are not formally trained in these tools. Because of this, many assume that GenAI is a “one-size fits all approach” and lack the technical understanding of which GenAI tools best serve their specific use cases or problems at hand. This leads to inconsistent outputs, misaligned training products, and inefficient workflows that fail to fully capitalize on GenAI’s capabilities. These issues create bottlenecks that delay course deployment and undermine overall force preparation, ultimately slowing the very training modernization efforts GenAI is meant to accelerate.

This presentation will explore how ISDs and courseware developers can harness new applications of existing M&S tools, particularly AI assistants, to improve force preparation through expedited training development and courseware modernization. We will examine

the current landscape of GenAI capabilities, including widely used Large Language Models (LLMs), and outline appropriate use cases, limitations, and implementation considerations for each. Using a representative ISD use case for scenario-based instructional design approaches, the presentation will review practical workflows that integrate GenAI into analysis, design, development, and evaluation (ADDIE) model activities. We will provide insight first into which tools to specifically use and how to align GenAI-assisted processes with established instructional design methodologies, then discuss how to structure effective prompts, and validate and refine GenAI outputs. The presentation will conclude with strategies for maximizing the value of GenAI while maintaining instructional integrity, accuracy, and responsible use. By leveraging GenAI to modernize courseware and streamline training content development, the DoD can deliver more adaptive, relevant, and timely training, which directly improves force preparation and operational readiness.