



Analytic Wargaming Best and Worst Practices

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Connections UK

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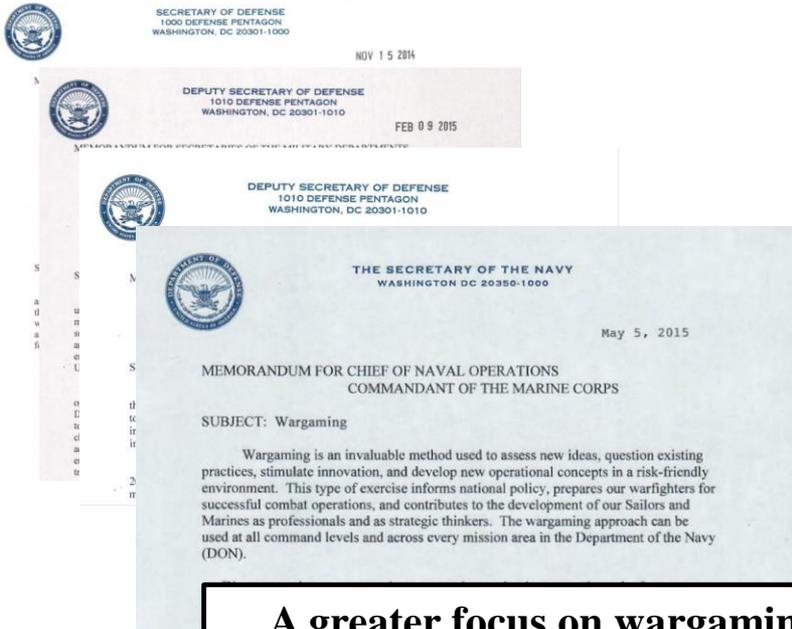
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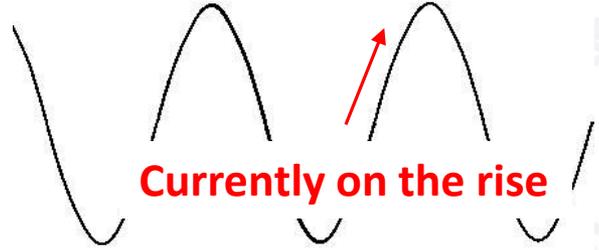
“Reinvigorating” DOD Wargaming

NOV 2014 – MAY 2015



A greater focus on wargaming - four MEMOs later.

Cycle of Wargaming



Wargaming is an invaluable method used to assess new ideas. Question existing practices, stimulate innovation, and develop new operational concepts in a risk-friendly environment.

CNO U.S. Navy

PROFESSIONAL FEATURES

Analytic Wargaming on the Rise

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“A reinvigorated wargaming effort will develop and test alternative ways of achieving our strategic objectives and help us think more clearly about the future security environment.”
—SecDef Defense Innovation Initiative memo, November 15, 2014

“The first and most important thing is our people. The second thing is what we want to do to reinvigorate wargaming.”
—Deputy Defense Secretary Bob Work, on the Defense News interview, November 24, 2014

Wargaming and History
Analytic wargaming has had a long and colorful history of success. The US Naval War College (NWC) began wargaming Plan Orange, operations against the Japanese in 1915, and created a rich body of analytic wargaming results

28 PHALANX - MARCH 2015



What is Wargaming?

Wargaming is ...

A dynamic representation of conflict or competition in which people make decisions and respond to the consequences of those decisions.

Analytic wargames are designed to collect and analyze information from wargame play, and these results either feed directly into a decision, or are used to develop other analytic products.

Outputs of analytic wargames such as concepts of operation (CONOPS), courses of action (COAs) and operations plans (OPLANs) are commonly used to 'feed' other analytic activities or serve as the operational foundation for computer-based combat simulation analysis.

Training and Educational wargames are not usually considered analytic games, as the product of these games are better trained or educated players. Planning wargames, if they are done with rigor, can be analytic wargames.



Colonel (R) Robert Burks, Ph.D.



Colonel (R) Jeff Appelet, Ph.D.



Between the two of us over 100 analytical wargames of experience



Five Phases of Wargame Creation

Initiate

Design

Develop

Conduct

Analyze

Develop Relationship with Sponsor

Form Core Wargaming Team

Determine Sponsor's Objective and Issues

Scope Problem

Create Data Collection and Management Plan

Determine Scenario

Choose Adjudication Models, Methods, Tools

Determine Player Roles Required

Determine Wargame Data Reqt's

Playtest all components of wargame (1 of 3)

Playtest all components of wargame (2 of 3)

Blind Playtest wargame

Full Dress Rehearsal of wargame

Collect Data

Manage Players

Exercise Contingencies (as necessary)

Develop Quick Look Report

Review and Process Data

Develop Final Results

Develop Final Report



Why Analytical Wargames Fail

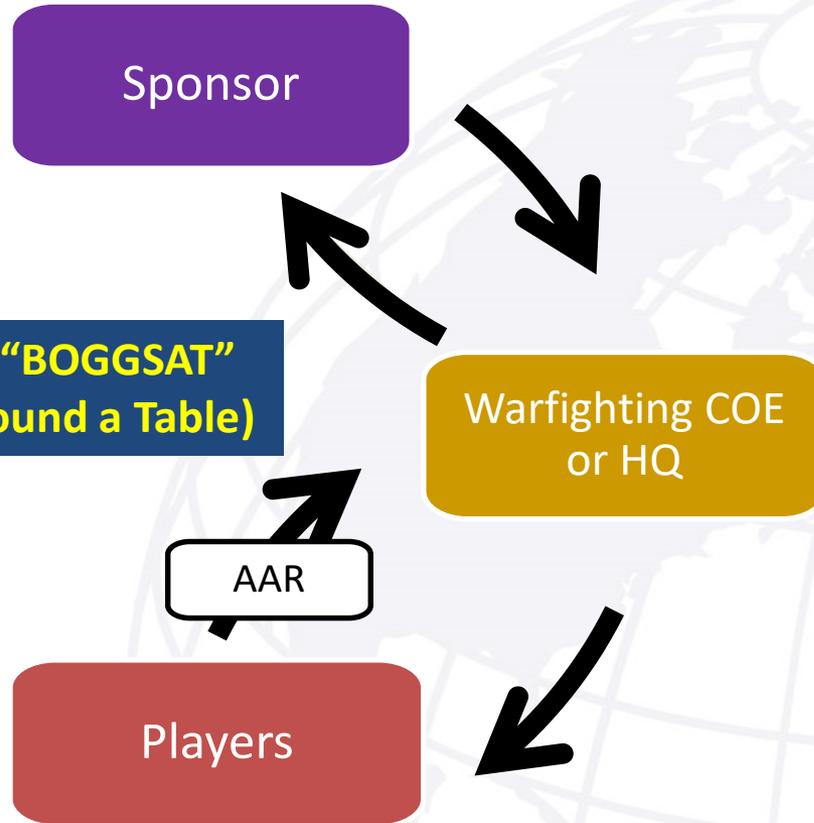
Five Common Reasons ...

1. **Forming a wargaming team without the necessary skillsets**



Wargaming Team Composition

Worst Practice



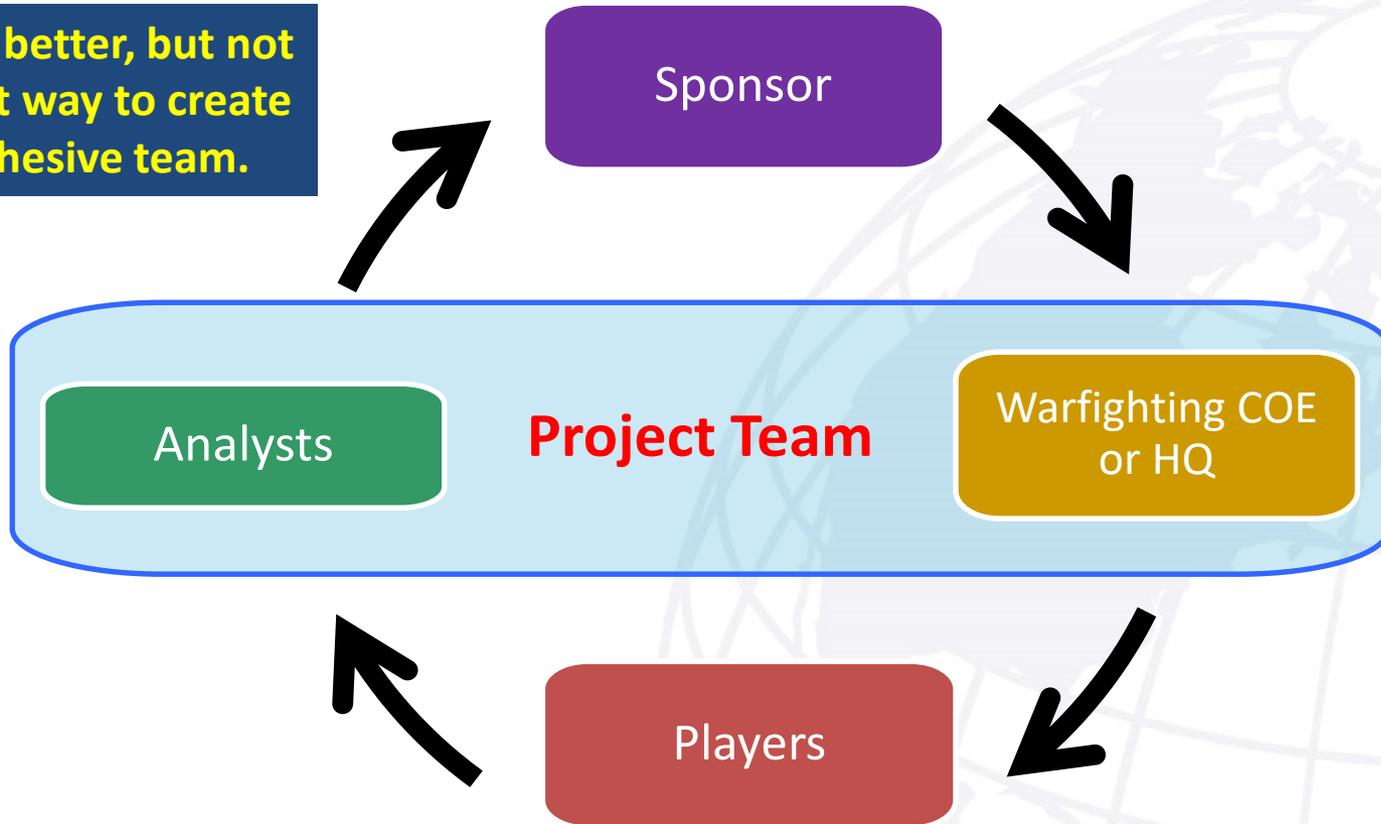
This is no more than an organized “BOGGSAT”
(Bunch Of Guys and Gals Sitting Around a Table)



Wargaming Team Composition

Better Practice

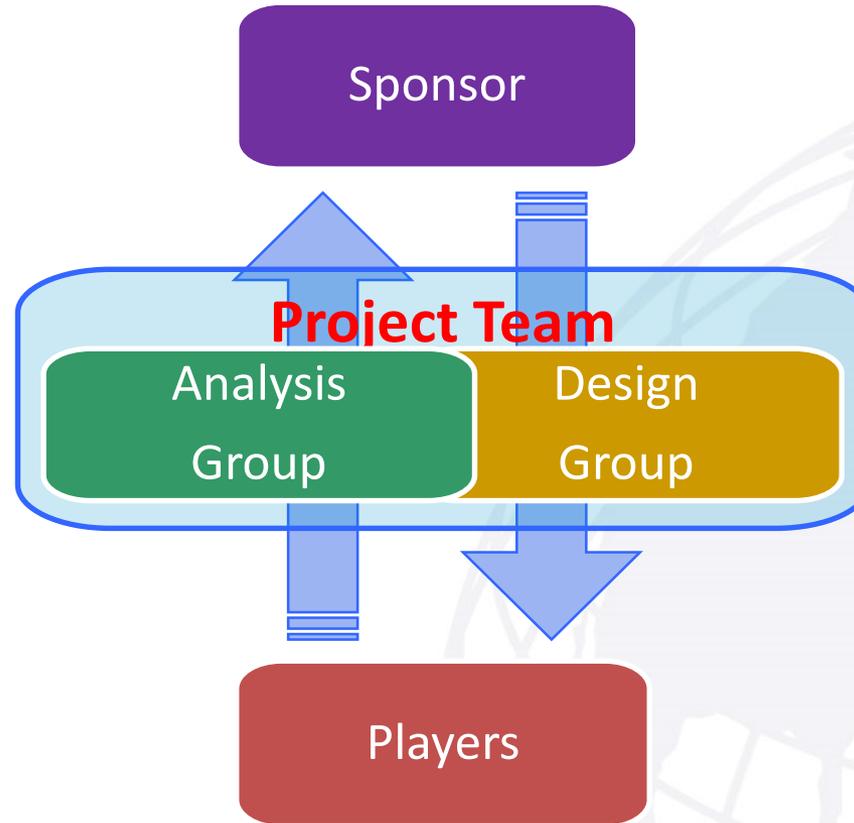
This is better, but not a great way to create a cohesive team.





Wargaming Team Composition

Best Practice



BEST PRACTICE: Analysts must participate in the game's design.



Wargaming Team Composition

Best Practice

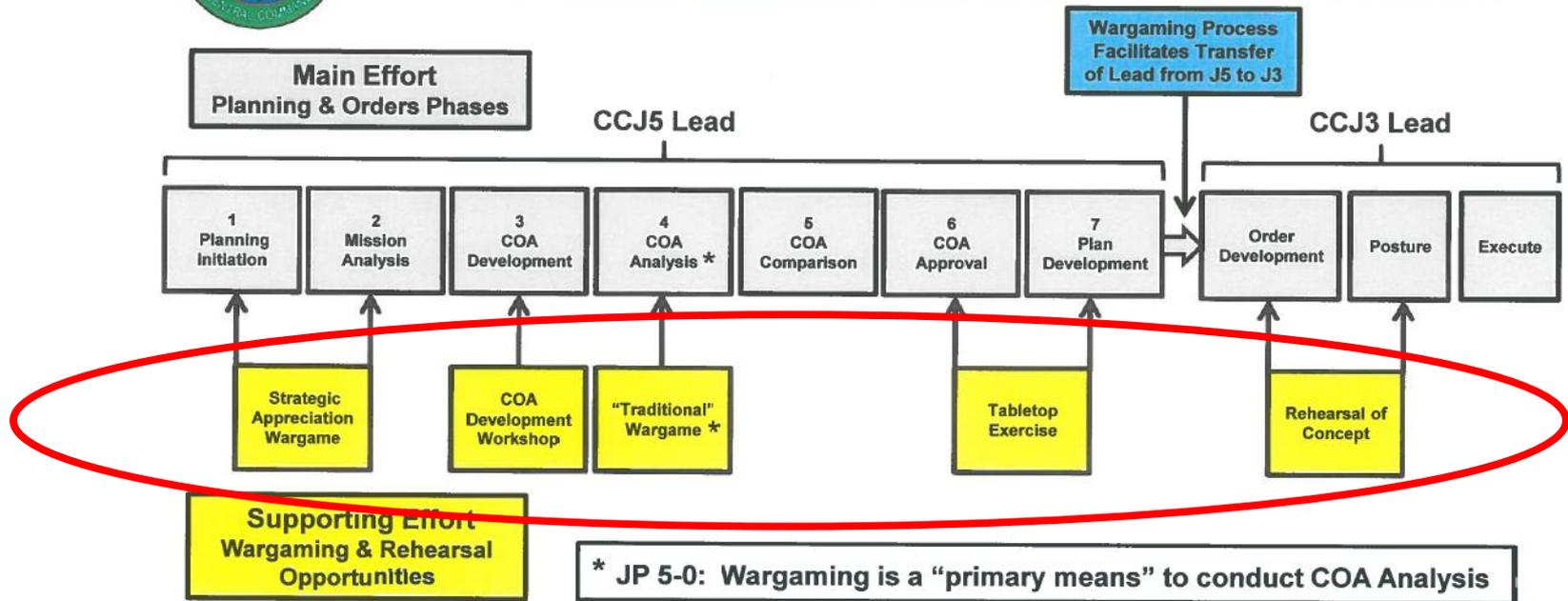
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CENTCOM Integrated Wargaming

Applying Wargaming Principles

Multiple Opportunities to Support Planning and Orders Process



CCJ8 Wargaming Cell (CWC)

TASKS: Advise J5 and J3 planners in development and execution of wargames, workshops, tabletop exercises, and rehearsals of concept and facilitate the application of various wargaming tools and methods as required

PURPOSE: Illuminate elements of complex problem sets to improve planning and operations



Why Analytical Wargames Fail

Five Common Reasons ...

1. Forming a wargaming team without the necessary skillsets
2. **Accepting the sponsor's initial objective and issues without clarification or scoping**



Worst Practice

Problem Statement: The U.S. Army must determine how to achieve combat vehicle overmatch in close combat against near-peer threats and to deliver decisive lethality as part of a combined arms team in the future operating environment.

Wargame Scope: Assess how the integration of emerging technologies and characteristics into the design of the Optionally Manned Fighting Vehicle (OMFV) provides overmatch while shaping future urban Combined Arms Battalion operations.

“Often, the sponsor’s goals will be unclear, or the utility of gaming for achieving these goals uncertain.”



Better Practice

- Go to school on your sponsor
- Realize that you may have to work through a sponsor's staff
- Understanding what the sponsor WANTS is your first goal
- Educating your sponsor on what is feasible is the second goal
- Making what is feasible answer the sponsor's NEEDS is the final goal

*“You can't always get what you want
But if you try sometimes
you might find
You get what you need”
-Rolling Stones*

*“Ignorance can be overcome through education.”
-Mike Bauman*



Best Practice

Minimum of Three Sponsor Interactions

1. Listen to the sponsor's objective and issues and clarify.
2. Verify the initial sponsor tasking—did I hear you correctly?
3. Develop a shared understanding with the sponsor of what you will deliver (NWC has a 'wargame proposal' that is developed by the wargamers and signed by the sponsor)

Use Constraints, Limitations, and Assumptions (CLAs) to form a contract with your sponsor

Constraint: A restriction imposed by the **study sponsor** that limits the study team's options in conducting the study.

Limitation: An inability of the **study team** to fully meet the study objectives or fully investigate the study issues.

Assumption: A statement related to the study that is taken as true in the absence of facts, often to **accommodate a limitation**.



Why Analytical Wargames Fail

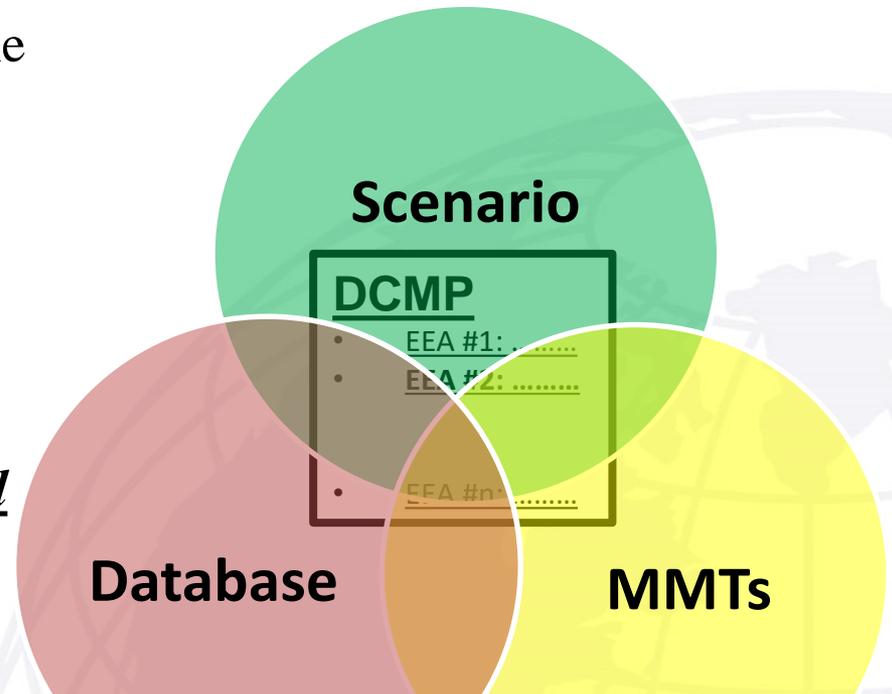
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2. Accepting the sponsor's initial objective and issues without clarification or scoping
3. **Designing a game without an analysis plan**



Analysis Plan – Measurement Space

Measurement space is a function of the scenario, MMTs, and database used in an analytic study. The objectives of the study can only be met if the measurement space *allows enough latitude to permit the systems under study to be assessed throughout a sufficient range of the systems' critical capabilities and attributes.*



Build the Scenario, Database and MMTs so you can collect the players' decisions (via the DCMP) that will allow you to answer the sponsor's objective and issues!

“Once the sponsor, designer, and analysts have agreed upon the definition of the problem, and decided how it may be usefully addressed through a wargame, the actual design work can begin.”



Best Practice

- The players are the critical component of a wargame's measurement space!
- If the players in your game don't have the requisite pedigree to produce relevant decisions in the situation the wargame places them, the best designed (and developed!) game will not produce useful results.
- The more senior your players are, the more likely it is that you will have to accept a last-minute player substitution!

Confirm who your players will be before completing your game design.



Why Analytical Wargames Fail

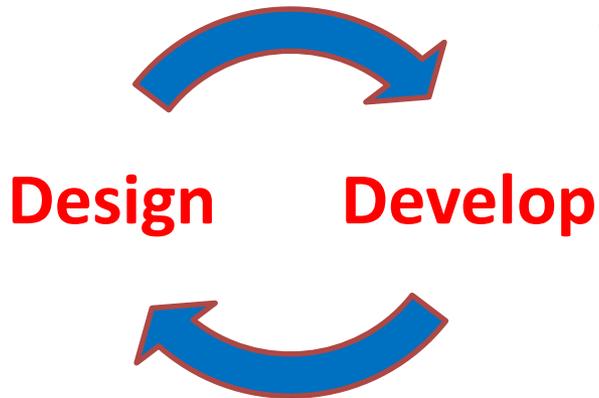
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3. Designing a game without an analysis plan
4. **Conducting a game without ever play-testing it**



Playtesting (To Test or Not to Test)

Best Practice



- Take your initial design and ‘develop’ it.
- Development is done by ‘play-testing.’
 - Does the game do what designer intends it to do?
 - Does it extract the information the analysts need?
 - Revise/update wargame as necessary.
- Once you do the first play-test, “design-develop” becomes an iterative process.
- Get a simple design completed quickly and develop (play test) it.
- Do NOT spend all of your time designing –there should be multiple (at least 3) design-develop cycles.
- Listen to James Dunnigan: “Keep it Simple” & “Plagiarize”



Why Analytical Wargames Fail

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1. Forming a wargaming team without the necessary skillsets
2. Accepting the sponsor's initial objective and issues without clarification or scoping
3. Designing a game without an analysis plan
4. Conducting a game without ever play-testing it
5. **Failing to plan for contingencies**



Worst Practice

- Assuming your game is designed perfectly—nothing can go wrong! This is usual a product of no Playtesting.
 - Result: No contingency plans (injects, branches, vignettes, interviews, surveys) if the DCMP information is not collected where expected.
- Discussion: Games can often be sidetracked as players take the game down rabbit holes.

Best Practice

Parking Lot Technique - When an important issue surfaces that merits further examination, but is taking the game off track, have a prominent place to post these issues so the players understand you share their view on the importance of the topic and plan to revisit it later, as time permits.



Properly focused player exit interviews, surveys, and other data collection efforts can add substantially to your analysis plan.



A Common Factor - Education

Wargaming Education of an Operation Research Officer

**Formal Wargaming
Education**

JOPEs & Joint Wargame

Modeling & Simulation

JOPEs

BDE/DIV MDMP & Joint Wargame

Modeling & Simulation

Modeling & Simulation

CAS3

SPLY/SVC MGT CRS

CO/BN MDMP

Infantry MCCC

NBC Officer Course

PLT/CO
MDMP

Infantry BOLC

Jungle School

ARMY War College

Ph.D. Operations Research

AIR War College

CGSC

MS Operations Research

Operation Research System Analysis MAC

**Formal Career
Education Course**



Questions?

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