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Speakers Notes

"Wargame players don't know that they don't know: what is to be done?"

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1   What are we talking about? What is this "wargaming" of which you speak?

There exist a wide variety of definitions of wargaming:

- "anything short of shooting real people with real bullets"[1]
- "a warfare model or simulation that does not involve the operations of actual forces, in which the flow of events affects and is affected by decisions made during the course of those events by players representing the opposing sides"[2]
- "players interacting with and via computer models or computer simulations"[3]
- "stand-alone computer models or computer simulations"[4]
- "a closed form set of mathematical equations"[5]

For the purposes of this Panel I am going to assume Peter Perla's definition. This gives rise to several observations about "what <u>makes</u> a wargame":

- Most importantly, human decision making is the primary factor. A wargame examines human decision making in the face of opponent decision makers.
- Simplify the event by removing actual forces (can speed up time for example).
- Selectively focus reality on objectives (it's a game, dude, not a model or a simulation).
- It is not a means to analyze physical effects (actual forces are not involved). Physics, such as probability of kill, sea base logistics throughput etc, are game inputs, not outputs.

This is not to say that other types of activity called "wargames" are not valuable. It all depends on whether you have correctly matched the objective of the activity to the design of the activity. You can call it what you like. Failure to match objective to design gives rise to "wargame pathologies".

Note that Peter's definition does not exclude the game's adjudication from using computer models and simulations, but these are used as labor saving devices and not used to make game decisions that we care about.

2   Why are we talking about it? Why do we wargame?

There are many reasons for wargaming, a few being research/analysis, training, education, or discovery. I am going to focus on discovery. We want to find out something we do not already know about human decision making and we cannot find these things out just by asking a bunch of senior officers – otherwise we would. Players are the key, so focus on the players. But players – even military officers – suffer human psychological and cognitive biases and are subject to bureaucratic pressures which effect wargame design, execution and analysis. I will explore four such biases and pressures with you this afternoon that are rarely considered in game design, execution and analysis.

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[1] Conversations with military officers, press reports, etc
[2] "The Art of Wargaming", Perla, P., Naval Institute Press 1990
[3] Distributed Interactive Simulations (NCTE) including JSAF
[4] NSS for example
[5] The Lanchester equations for example

3 People are "Unskilled and unaware of it"[6]

People in the lowest quartile of actual competency tend to self-assess themselves in the second to highest quartile; they are unskilled and unaware of it.

People in the highest quartile of actual competency tend to self-assess themselves slightly lower but within the highest quartile; they inflate their colleagues competency compared to their own.

Why does this matter?

If you are attempting to game novel concepts, you will get two kinds of game:

➢ You explore how experts in the novel concepts would use them to best effect, and identify possible weaknesses and shortfalls in how experts might use those concepts, or

➢ You explore how decision makers who are not expert in these concepts would flail around attempting to use them, and identify possible training and education requirements.

By definition, the more novel the concept the less knowledgeable are the players and the fewer experts exist.

The game gets flooded with players who are not only not expert, they think they are expert.

What is to be done?

Design

➢ Do not game more than a small number of novel concepts.

➢ Game repeatedly the same concepts with the same core players.

➢ Survey players as part of registration. Provide them with the concept documentation and ask for their self-assessed expertise at each concept. Consider an on-line test for competency in the concepts.

➢ Anyone who claims "world class expert" at more than a few novel concepts is lying or "unskilled and unaware of it". In UC-04 we had a number of players claiming world class expertise at 20 or more novel concepts.

➢ Anyone who claims "world class expert" at any novel concept is probably lower third quartile/upper second quartile (after all, the concept is novel), not an expert.

Execution

➢ Look for people with some credible expertise in two or more concepts (you want to game interactions between concepts) and staff game cells accordingly.

➢ Balance experts across the cells to cover your priority objectives.

Analysis

➢ Caveat moves or discussions about concepts with the cell's level of credible expertise.

➢ Caveat moves or discussions about interactions between concepts with the level of credible expertise in pairs of concepts (the game is too short to teach each other to be an expert in one's own area).

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[6] "Unskilled and unaware of it: How Difficulties in Recognizing One's Own Incompetence Lead to Inflated Self-Assessments", Kruger J, Dunning, D. Journal of Personality and Social Psychology, 1999, Vol. 77, No. 6.] 121-1134 online at http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.64.2655&rep=rep1&type=pdf (last visited 7/8/2011).

4   People cannot predict their own decision making

Research shows that "People are not aware of the reasons that move them; even an introspective person with incentives to estimate how he or she would have behaved with different information cannot do this"[7].

Why does this matter?

But this is precisely what we ask players in a game to do, to "imagine you are in some future (or other) environment which is different from the real present one you know you are in (present day, and it's a game), and make a decision". We then try to draw conclusions about the decisions made in the game that are valid for decisions that might be made in the future or other environment.

Since decision makers can't predict their own decisions under different information then the players' decisions will not be a reliable indicator of the decisions they would make under future or non-game circumstances.

When wargaming novel concepts or situations with which the players have no experience (examples include nuclear war or MCO with China) this problem cannot be assumed away.

What is to be done?

Design
➢ Focus game objectives on interpretation and misinterpretation of the information used by players to justify their decisions
➢ Focus game objectives on differences in decisions made, how they are made, and why they are made, under different information cues.
➢ Focus game objectives on what decisions the players consciously rejected, and why

Execution
➢ Players must provide information about how they interpreted information
➢ Players must provide information about why they made and rejected decisions

Analysis
➢ Compare the changes in decisions, and the reasons given for the decisions, to changes in information provided to the players.
➢ Attempt to induce as hypotheses for further analysis effects of information changes on changes in decisions, and possible generalizations of those effects to real world applications.
➢ Probe their decision making during past relevant situations and attempt to identify similarities between event features and the wargame.

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[7] "Reports, Politics, and Intelligence Failures: The Case of Iraq", Journal of Strategic Studies, Vol. 29, No. 1, 3 – 52, February 2006 online at http://www.tandf.co.uk/journals/pdf/papers/FJSS_LR_3-52.pdf (last visited 7/8/2011). See also "Understanding Beliefs", Jervis, R., Political Psychology, vol. 27, Fall 2006.

5   People cannot predict others' decision making

If most people cannot accurately predict their own decisions, then what do you think is the likelihood they can predict other peoples' decisions?

There are not enough experienced people available who can genuinely think like decision makers from other cultures.

Why does this matter?

Mirror Imaging matters when we are interested in Blue decisions in the face of Red intentions, or are interested in Red decision making behaviors. Mirror imaging does not matter when we are interested in Blue decisions in the face of Red capabilities. In this case Red's decisions are simply to provide the most dangerous opponent possible to Blue that Red capabilities permit while ignoring Red's cultural proclivities.

Obtaining experts in Red thinking generates several problems. Ex-patriots from Red countries of interest often have various political agendas, are not necessarily expert in their own country's political and military decision making styles (how many disgruntled Americans are truly expert on the political and military culture of the US?), and face security classification issues. US citizens who are genuinely expert in foreign cultures and who can obtain security clearance are rare, and we can only assume (not know) that their interpretations of foreign cultures are accurate.

Finally of course there is the problem already discussed about estimating behaviors with different information, now made much worse by the fact that it is someone else's behavior you are trying to estimate with information different from that provided in the game.

What is to be done?

> **Design**

> ➢ Focus game objectives on Blue decisions in response to Red, and on weaknesses and shortfall in Red capabilities.

> ➢ Make Red play to the strengths of it capabilities and ignore Red cultural proclivities that would restrict their behaviors.

> **Execution**

> ➢ Collect information on Blue's interpretation of Red behaviors and Blue's decisions in the light of these interpretations.

> ➢ Collect information on Red's decision and, critically, Red intentions behind their decisions.

> **Analysis**

> ➢ Compare the gap between Blue interpretation and Red intentions.

> ➢ Note that only the gap between Blue's interpretations and Red's intentions are valid. Since Blue is populated by people from real world Blue culture then Blue's interpretation of Red is valid (not necessarily correct, but valid in the sense that we believe this is what Blue's interpretation would be under different information).

> ➢ However, unless we seriously can claim that Red is populated by people from real world Red culture then Red's interpretation of Blue intentions becomes suspect.

6   Players are gaming the game

Players' objectives for the game are fundamentally different from those of the game's sponsors

➢ Personally "winning the game"

➢ Demonstrating the superiority of their service's or community's concept, weapon system, procedure, whatever, over anyone else's – i.e. "proving a pet rock is the greatest"

Both these may be summarized as "Gain your boss's or community's approval and avoid irritating them" (don't let the carriers be sunk).

Why does this matter?

Personally "winning the game" is a great motivator for eliciting innovative and dedicated behaviors (including cheating to win). Unless care is taken the efforts put into winning the game can and will conflict with the game's objectives by focusing the player on decisions that conflict with the game's objectives. For example, consider a game objective to explore decision making to achieve strategic de-escalation during MCO but the game is designed in such a way that the player is motivated to escalate operationally in order to win.

Game sponsors have no difficulty listing the advantages of their proposals – that is why they propose gaming them in the first place – and players will focus their decision making on the advantages of their "pet rocks". However, a wargame is a single trajectory through an enormous space of possible decision combinations. It therefore can never provide evidence for something, only against. Gaming that focuses on comparing advantages proves nothing – as 300 years of successful science and 3000 years of successful social science has taught us. One must focus on and compare the disadvantages of alternative decisions.

What is to be done?

Design

➢ Publish explicit victory conditions that are tied to the game's objectives.

➢ Use a robust Red side that has as good a chance of defeating Blue as possible.

➢ Design the game objectives to be weakness based – i.e. focused on the downsides of alternatives – and the player decisions to be aimed at surfacing weaknesses of the alternatives.

Execution

➢ Before the game, recruit the senior officers who will lead the game cells into providing guidance on the game mechanics based on the objectives, and obtain their agreement. Their job is to lead their cells through the game process, not unilaterally change the wargame process half way through the game because they think they have a better idea about how the game should be run.

➢ Hold the players to the game mechanics and process, especially those around collecting game data. This reduces the effects of players (most especially the senior officers) gaming the game for their own objectives.

Analysis

➢ Compare weaknesses and downsides of alternatives against each other.

7   Summary

Some issues with strategic gaming	Some possible innovations
Wargames of novel concepts tend to explore how novices would flail at employing those concepts, and provide little insight into how experts would employ those concepts.	Take the notion of expert seriously – repeated gaming with the same players is required in the absence of real world experience, not just a one-off one-week game.
Wargames provide decisions made and not made in the game (and reasons for them), and provide little insight into the decisions the players or others would make in the real situation.	Focus on the how players interpret and misinterpret information they used to make their decisions, not on the decisions themselves.
Wargames provide more information when Blue loses, but players are concerned with winning in the eyes of their community and Boss.	Make the players, as part of their victory conditions, provide information into the risks and downsides of their decisions.