
Group Dynamics in Wargames and How to Exploit Them

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Stephen Downes-Martin, PhD

Research Fellow, Naval War College

401-935-4808

stephen.downesmartin@gmail.com

<https://sites.google.com/site/stephendownesmartin/>

***Dr Stephen Downes-Martin** is a Research Fellow at the US Naval War College and is an independent scholar researching, teaching and supporting wargaming, game theory, confrontation analysis, systems thinking, decision support and analysis, negotiation analysis, deception and assessments methods applied to problems at the strategic, operational and tactical levels of warfare and business. A research focus is on how to manipulate such methods to deceive decision makers, how decision makers misuse such methods to deceive themselves, how to detect such attempts and protect decision makers from them. He works with and for a wide variety of government, military, aerospace, academic and commercial organizations in the US and internationally. His full bio is at: <https://sites.google.com/site/stephendownesmartin/>*

Abstract

Wargame designers tend to use seminar game designs when senior military officers or civilian executives are the players. These designs feature small group discussions within player cells before players decide their moves. This occurs for two main reasons. First such designs engage senior leaders in the wargame while requiring minimal personal gaming experience by them, and second, for games whose objective is to explore future novel situations they support discussion about topics that are not well understood even by experts and for which there are few clear cut rules for adjudication. There are however a number of well-researched pitfalls when decisions follow small group discussions, such as the risky-shift and the dishonesty-shift, and these are often ignored by wargame designers. For wargames meant to inform decision making by the sponsors the game must be designed to be normative, not merely descriptive, and failing to mitigate for the pitfalls of small group dynamics will lead to poor insights from the game. This paper describes how small group dynamics can be exploited or mitigated by the wargame designer and the wargame stakeholders engaged in both the game itself (the “inner game”) and the political or bureaucratic context within which the game is played (the “outer game”).

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Introduction

Reasons for wargaming include any combination of entertainment, education, training, or exploration. Each of these types of game can be implemented by a variety of designs. This presentation is focussed on Wargaming designs that involve small groups or teams gaming against other small groups or teams, for example seminar or matrix games, and within which these groups discuss the situation and their plan and then decide their move.

Wargame organizations tend to use seminar game designs when using senior military officers and civilian executives as players. They do this for two main reasons. First such designs engage senior leaders in the wargame while requiring minimal personal gaming experience by them, and second, for games whose objective is to explore future novel situations, they support discussion among experts about topics that are not clear cut or well understood and for which there are few clear cut rules for adjudication.

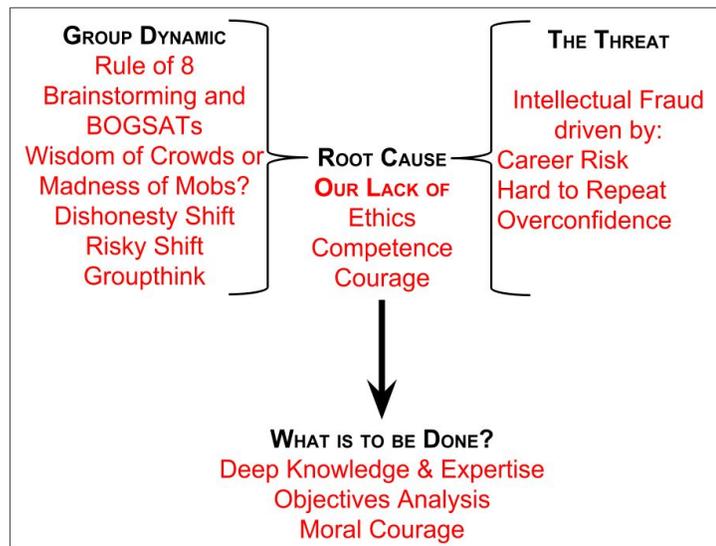
Additionally, for inductive games, one must also take into account the adjudication cell which is often a small group engaging in discussion to decide the outcomes (Downes-Martin 2013). In these games the participants engage in small group discussions that, depending on design, can emulate to some degree the staff and decision processes of their jobs. These discussion periods are embedded into the game schedule which is run and supported by staff from the wargaming organization.

The problem is that there are well established pitfalls in decisions made by small groups following discussion. If a wargame is meant to simulate or emulate real world staff behavior, then there is probably no problem ignoring these pitfalls and leaving them in place, in which case we have a descriptive game. On the other hand, if the wargame is meant to inform decision makers or researchers then we must understand how these pitfalls influence game decisions and consciously take them into account when analyzing game outputs and advising game sponsors, i.e. we want a normative game (Downes-Martin 2018b).

Most decisions in the areas that wargames deal with are not amenable to objective scientific proof that they are the best possible. They are professionally subjective and based on qualitative variables. If you believe your choice for the decision is the one that is best for

national security or some other worthwhile objective, then it is your ethical duty to get that decision to be the one selected, it is not your ethical duty to get a decision you do not believe is the best one to be the one chosen. So be prepared to explain these dynamics to your boss and colleagues, and if they willfully choose to be ignorant and ignore them be prepared to game the discussion and decision selection process to get your preferred decision to be the one selected.

This document walks through some of the dynamics of small group discussions. These discussions occur both during the game itself (the “inner game”) within player cells and the adjudication cell, and during the “outer game” played between the sponsor and game designer (and their respective organizations) during the negotiations over game objectives and design. The paper describes how the dynamics can be used to threaten the integrity of the wargame via intellectual fraud, drills down to root causes and discusses possible



exploitations (that build on each other) and mitigations. Finally it makes recommendations for the professional wargamer. Although the players may have objectives that are hidden from the designer and may conflict with the sponsor’s objectives, the small group dynamics described by the research are still applicable. Hidden player objectives are a whole additional problem, dealt with by good game design and ruthless facilitation.

It is tempting to complain that the recommended mitigations are hard or time consuming. Good national security is hard, and if one chooses to ignore the pitfalls then one introduces the risk of the pitfalls reducing the value of insights gained from the game.

Some Important Group Discussion Dynamics

“Rule of 8”

This is an observation I have made over many years and a large number of meetings that involve group discussion. In such discussions only about eight people make substantial contributions. A few additional people might make a comment or two. I have not observed any correlation between who contributes and the characteristics of the contributors other than who speaks early. If the discussion goes on long enough and the topic changes then I have observed that the contributors sometimes shift to a different (possibly overlapping) group of approximately eight people. I am unaware of any experiments or literature that confirm or describe my observation. I do not know why the number is “8”. This effect is extremely useful for taking over a small group discussion, and other pitfalls can be amplified by it if you choose to exploit those pitfalls. All pitfalls discussed below assume the “rule of 8” is also being used.

Exploitation. Be “inclusive”, invite everyone to your discussion group. Recruit your own team of 6 or more people and prepare them to seize the “discussion initiative” by speaking early and often in support of your agenda. This raises the probability that only the topics you are interested in get discussed and your agenda is most likely to dominate. The others will likely not notice what you are doing since they have been subconsciously acclimated to the “rule of 8” by past participation in meetings.

Mitigation. Split large groups into groups of about 5 to 8 people. The groups either discuss the same topic in parallel and you integrate their results later, or you expand the breadth of the discussion by having the groups discuss different topics.

Brainstorming and BOGSATs

Immediately following its introduction in the 1950s brainstorming has routinely been debunked as an effective mechanism (Lehrer 2012), so much so that the demonstration of its inferiority compared to easily implemented normative processes is a routine experiment carried out by first-year undergraduate social science students. This is quite separate from the observation that most brainstorming sessions do not even follow the primary rule for Brainstorming, which is that there should be no analysis during the the brainstorm, i.e. no criticism (positive or

negative) of any idea that surfaces during the brainstorm. My own observation over the last few decades is that within two minutes of the start of a brainstorm a senior officer has grunted or otherwise indicated approval or disapproval of some junior officer's idea – and the brainstorm is over. Furthermore it has long been proven that a disciplined normative approach using Language Processing, Silent Clustering and Formal Debate give superior results than those obtained from ill-disciplined methods such as brainstorming (even when run properly) or BOGSATS (Mullen et al 1991).

The normative approach consists of three phases; first experts think about the problem on their own and write down their initial ideas individually. Second, they meet in a group and discuss. Finally, they think again as individuals present their additional ideas later. This normative method has been routinely proven by experiment to generate better results both at the second stage and at the third stage than any group process. Goal/QPC provides a very detailed description of one method of implementing a normative process.¹

Exploitation. Have your “team of 8” prepared and ready to use body language to indicate approval or disapproval of an idea or proposal or Course of Action that you want accepted or rejected. Examples might include sucking of teeth, grunting approvingly or disapprovingly, muttering “that’s a great idea” or “yeah, that doesn’t work”, and so on.

Mitigation. Use the proven normative approach. Group members first silently write down their ideas, proposals, responses or courses of action (depending on the task) at the start of the game move and without discussion. These are then posted to the wall for all to review and discuss. During the discussion additional ideas will surface and irrelevant responses be removed. The third phase occurs after move submission and is in preparation for receiving the adjudication results. All three phases can be fitted into a short discussion group so long as it is kept to 8 or fewer disciplined people and is rigorously facilitated.

Wisdom of Crowds, or the Madness of Mobs?

The work of Philip Tetlock, Dan Gardner and James Surowiecki (“Superforecasting”, “Wisdom of Crowds”) and their colleagues is all too often grossly oversimplified into the claim

¹ See (Downes-Martin et al 2107) for an example of successful use of the normative method applied to a working group.

that “aggregate group forecasts and decisions are much better than individual ones”. This is clearly nonsense; a group of idiots is unlikely to make a better forecast or decision than a single expert, and a single expert is more than likely to make a better decision about their area of expertise than a group of experts in another field. No patient in their right mind would ask a group of sanitation engineers about their cancer treatment instead of the cancer consultant at the cancer institute. The wisdom of crowds and superforecasting research is much more nuanced, with interesting areas to manipulate, than the popular understanding of them.

A group of experts, making a decision or forecast about their area of expertise, is more likely to make a better decision or forecast than a randomly selected individual from that group, is a more accurate summary of the research. Furthermore, as discussed above, research indicates that a group brought together and using BOGSAT and Brainstorming consistently underperforms the same group using normative methods in which individuals first work independently, then in a group, then review and refine as individuals (Nijstad et al 2006; Lehrer 2012; Mullen et al 1991).

It appears that four requirements must hold for a crowd to be wise rather than a mad mob (Surowiecki 2004):

- **Diversity of opinion:** Each person should have private information even if it's just an eccentric interpretation of the known facts.
- **Independence:** People's opinions aren't determined by the opinions of those around them.
- **Decentralization:** People are able to specialize and draw on local knowledge.
- **Aggregation:** Some mechanism exists for turning private judgments into a collective decision.

While the groups I have observed often do satisfy the Decentralization requirement, they mostly fail on the other three for Wisdom of Crowds. They frequently consist of subject matter experts from the same communities of practice or Service with peer pressure to conform to doctrine. Opinions, in the form of statements or votes, are often collected sequentially and publically. Aggregation is often based on flawed voting schemes using junk arithmetic.²

² For details of this kind of problem and how to deal with it see the briefings and reports on the Puppet Mastery web page at <https://sites.google.com/site/stephendownesmartin/puppet-mastery>.

It is tempting to draw on the Good Judgment Project (GJP) and the creation of Super Forecasters (Tetlock 2005; Tetlock & Gardner 2015) as a counter to the research about the failure modes of group discussions (Lorenz et al 2011). Although valid concerning forecasting, the conclusions of the GJP are not relevant to wargaming as currently carried out by most DoD games. The Good Judgment Project approach identifies superforecasters and has developed techniques for training those identified superforecasters in order to get good results. It does not deal with decision making by (near randomly selected) groups of people from a community (often not expert in the topic being gamed), which is what we deal with in wargaming as currently carried out by wargames that support the DoD. It deals with forecasting rather than decision making, the individuals in the group engage in a normative process of making their forecasts as individuals and then discussing, and the process takes significantly longer than that available for wargaming. This is a very different participant selection and activity process to wargaming. Even if we could select the “right” participants for the wargame we don’t have time to train them and they are unlikely to be trained superforecasters.

Exploitation. Break the four requirements. For example select a few senior (high ego) people who you know have opinions you prefer, add a larger group of junior people who are not expert in the topic under consideration, allow undisciplined brainstorming, then ask for decisions or answers or points sequentially starting with the most senior person. Then claim “wisdom of crowds”. Use junk arithmetic (such as rank ordered decision matrices) to aggregate group opinions, and then manipulate those numbers using Puppet Mastery techniques.³

Mitigation. Use the first three requirements to recruit players, do not just accept whoever is sent to your game. Use a normative approach. If aggregating opinions use qualitative pro and con decision matrices, not popular junk arithmetic approaches.

Dishonesty Shift

Research indicates “that there is a stronger inclination to behave immorally in groups than individually” (Kocher et al 2016), resulting in group decisions that are less honest than the individuals would tolerate on their own. “Dishonest” in the context of the research means the

³ <https://sites.google.com/site/stephendownesmartin/puppet-mastery>

group decisions break or skirt the ethical rules of the organization and societal norms, involve cheating and lying. Furthermore, the group discussions tend to shift the individuals' post-discussion norms of honest behavior towards dishonest. First the discussion tends to challenge the honesty norm, then inattention to one's own moral standards (during the actual discussion) and categorization malleability (the range in which dishonesty can occur without triggering self-assessment and self-examination) create the effect that "people can cheat, but their behaviors, which they would usually consider dishonest do not bear negatively on their self-concept (they are not forced to update their self-concept)" (Mazar et al 2008).

The research indicates that it is the small group communication that causes the shift towards dishonesty that enables group members "to coordinate on dishonest actions and change their beliefs about moral behavior". The group members establish "a new norm regarding (dis-)honest behavior" (Mazar et al 2008). Appeals to ethics standards seem to be effective in the short term (Mazar et al 2008) but there is little evidence for long term effectiveness (Kocher et al 2016). As H. G. Wells observed over a century ago "... it is remarkable how elastic the measurements of quite honest and honourable men can become." (Wells 1913)

Exploitation. Decide if the decision you want is outside the moral norm of the group. If so, introduce what you want by small increments, nudging the group slowly down the immoral path by overemphasizing the benefits. If the decision goes towards what you do not want then make credible arguments about how that decision can be viewed as immoral based on possible knock-on effects of the decision you do not want.

Mitigation. Formally remind the group at the start of every discussion about the ethical standards required of the group and explicitly set these standards within the context of the wargame. For more detailed mitigations see (Downes-Martin et al 2018b).

Risky Shift

Research into risky or cautious shifts during group discussion looks at whether and when a group decision shifts to be riskier or more cautious than the decision that the individuals would have made on their own (Batteux et al 2017; Dodoiu et al 2017). One element driving the shift

appears to be who bears the consequences of the decision – the group members, people the group members know (colleagues, friends, family), or people the group members do not know. There is evidence that individuals tend to be myopically risk averse when making decisions for themselves (Thaler et al 1997). Research indicates however that “risk preferences are attenuated when making decisions for other people: risk-averse participants take more risk for others whereas risk seeking participants take less” (Edelson, Polania, Ruff, Fehr & Hare 2018). Whether the group shows a risky shift or a cautious shift depends on the culture from which the group is drawn and the size of the shift seems to depend on the degree of empathy the group feels for those who will bear the consequences and risks of the decision.

Research into leadership shows that “responsibility aversion” is driven by a desire for more “certainty about what constitutes the best choice when others’ welfare is affected”, that individuals “who are less responsibility averse have higher questionnaire-based and real-life leadership scores” and do not seek more certainty when making decisions that are risky for others than they seek when making decisions that are risky for themselves alone (Greenfieldboyce 2018; Edelson et al 2018). However, this research says nothing about the starting risk-seeking or risk-avoiding preference of the decision-making leader.

Exploitation. Understand the risk seeking or averseness of individuals in the group, and give speaking preference to whichever best supports your objectives and tend to ignore the others. Emphasize the uncertainty of the situation if you want to delay decision making and trigger a panic decision based on prior beliefs. Since research indicates that good leaders tend to be risk neutral when making decisions for others try to exclude them from the discussion (put them in a separate room of “greybeards discussing important topics”).

Mitigation. Push for discussion about the probabilities and consequences and the need for risk neutrality. During post game analysis report on the risk seeking and aversion profiles of the members and caveat the decisions accordingly. For more detailed mitigations see (Downes-Martin et al 2018b).

Groupthink

Groupthink has been defined as a “psychological drive for consensus at any cost that suppresses dissent and appraisal of alternatives in cohesive decision making groups” (Janis 1972).

Exploitation. Groupthink amplifies the effects of individual biases within a group setting, and this can be exploited. This document is not concerned with the details of these individual biases, only with the use of group think to amplify their effect within a group. An example will suffice, specifically “Preference Reversal” (Thaler & Tversky 1990). For example, most people (not everyone, and not always) prefer a small sure gain to a larger uncertain gain when faced with a choice between gains, but prefer to risk a larger loss to avoid the certainty of a smaller loss when faced with a choice between losses (Harley 2016).⁴ So, depending on how you want the group to decide, choose whether to frame the question or decision in terms of losses or gains and allow groupthink to take over. Every personal bias can be amplified within a group setting, the precise method determined by the details of the bias.

Mitigation. Use a three-step process. First explicitly warn the group about the dangers of Groupthink. Second identify the kind of personal bias that the group is amplifying. You will be able to do this by tracking the kind of thinking and analysis that the group is using. Finally use the details of the bias to counter the Groupthink -- for example if you have identified the situation is at risk of a preference reversal then describe the situation, question or decision in terms of both gains and losses.

⁴ Obviously these tendencies can be reversed if the size of the gains and losses are sufficiently large with respect to each other.

The Threat

A major vulnerability of the integrity of wargames designed around small group discussions is the exploitation of the small group dynamics driven by intellectual fraud. Three risk factors have been identified as present in nearly all cases of scientific fraud. The perpetrators “knew, or thought they knew, what the answer to the problem they were considering would turn out to be if they went to all the trouble of doing the work properly; were under career pressure; and were working in a field where individual experiments are not expected to be precisely reproducible” (Shermer 2010; Goodstein 2010)

All three risk factors are present for serious national security related wargames. The first risk factor is usually present since research indicates that senior people tend to be overconfident in their ability to control events that are in fact outside their own control, failing to realize the need for adapting their thinking to that reality (Gladwell 2009; Chapter 10 in Wills 1994; Langer 1975). Their successful control of past situations leads them into the mistake of believing their competence applies to current situations, especially situations involving a high degree of chance. They are also usually under career pressure from their organizations and communities to support funded programs of record and preferred concepts, and finally wargames are believed by most senior people to lack repeatability.

Senior participants will attempt to nudge the design, execution, analysis and reporting down pathways they, with the best of intentions, believe to be correct. They will at the very least not challenge the pitfalls of small group behaviors during the wargame lifecycle, and at worst will actively encourage those behaviors (Downes-Martin 2014).

Exploitation. Select group members who are senior, and who are certain they know the answers, and those answers are the ones you want. Emphasize the importance of the game to their communities and bosses, and keep discussion time short.

Mitigation. Design a objective rational game using objectives analysis, be prepared to rigorously enforce the game, call out nonsense when you see it, do not allow senior people to derail your game (Downes-Martin 2014).

Root Cause

A sponsor rarely brings you a clear statement of the problem suitable for wargaming. All too often they bring you a topic of conversation, a vague statement about difficulties or desires, or they have articulated the problem of how to implement a poorly thought out solution to a problem they have not told you about. The sponsor, your boss and your senior players will attempt to interfere in the game design even as you are attempting to play it. This is (usually but not always) well meaning, but is inappropriate interference by people who are not expert at your job of game design (even if they once were) and is a conflict of interest.

Any failure on your part to understand the sponsor, any lack of competence in wargaming theory and practice, or any lack of courage in dealing with inappropriate interference from well-meaning but incompetent people senior to you will threaten the integrity of the game and any decisions it informs.

Exploitation. Use your sponsor's lack of specificity and desires for a preconceived answer to put together a "victory machine" game that gives the "right answer". Use your boss's desire to interfere to ensure you are not blamed if the game is later debunked (Downes-Martin 2016).

Mitigation. Push the sponsor for gameable objectives. Do an objectives analysis (Downes-Martin 2014). Design the game and get the design signed off. Run the game, have the intestinal fortitude to push back against interference. Report interference in the final game report (Downes-Martin 2014, 2017).

What is to be done?

1. Read! Make yourself familiar with the wargaming literature, not just your own organization's publications.
2. Become knowledgeable about the underlying theory of everything that overlaps wargaming and be able to use that knowledge when designing, running and analysing wargames. That includes decision analysis, negotiation analysis, game theory, voting theory, design of experiments, group psychology, systems thinking, etc. Do not become captured by your organization's favorite wargame method.
3. Gain experience in all aspects of putting together a wargame for your client.
 - Engage the client and identify the real problem, not just the stated problem
 - Craft the proposal to solve the client's problem
 - Design the game to achieve the client's objectives
 - Run the game according to the design and gather the data
 - Analyze the data using all appropriated methods (inductive, deductive and abductive logic, qualitative and quantitative techniques)
 - Report back to the client with ruthless honesty
4. Gain experience with as many different types of wargames as possible, including
 - matrix gaming
 - seminar/tabletop gaming
 - board gaming
 - computer gaming
5. And, most importantly, remember that a game is not always the answer! Learn about as many problem-solving methods as possible and apply the correct ones to the sponsor's problem. Do an objectives analysis (by analogy with the mission analysis part of the military planning process) by asking the sponsor:
 - What do you want?
 - Why do you want it?
 - Why don't you have it?
 - How long are you in your position?Then, and only then, decide on an appropriate response, write the proposal, and design the approach.⁵

⁵ See Downes-Martin 2014 for a detailed description of objectives analysis.

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