Exploit Small Group Dynamics During Analysis to Support the Decision You Want

Keynote Speech 8th October 2019

Stephen Downes-Martin, PhD
Research Fellow Naval War College
UNITED STATES OF AMERICA

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

ABSTRACT

Analysts and Sponsors have ethical responsibilities to each other. The analyst is responsible for providing valid, useful and actionable information that supports the sponsor's decision making, and the sponsor is responsible for providing clear, accurate and complete requirements.[1] Small group discussions occur between sponsor and analyst at the start and end of the project, and between analysts during the project. There are a number of well-researched but mostly ignored pitfalls that warp decisions following small group discussions. These pitfalls can be skillfully or inadvertently exploited to warp the analysis to support a preferred decision established prior to the analysis. The analyst and sponsor are jointly responsible for designing the group processes to ensure this does not happen, and to push back against inappropriate, albeit well-meaning, interference in the group process design by senior leaders in the analyst's and sponsor's organizations.

In this talk I describe an "analysis process design" game as a thought experiment about how pathologies of small group discussions can be deliberately used to distort decisions following analysis. The game is between an exploiter (Red) and the analysis process designer (Blue). Red's objective is to distort the sponsor's decisions during and after the analysis to support some preconceived agenda by exploiting small group dynamics during the discussions that occur during the analysis and engagement process. Blue's objective is to design a normative analysis process that honestly informs the sponsor's future decision making by taking the pathologies of small group discussion dynamics into account.

Examining the possible moves by both players during the analysis process design game informs sponsors what to look for to be confident the analysis process designer has minimized the risk these small group dynamics will malignantly distort the insights from the analysis. In addition it provides analysis process designers with insights that go beyond best practices and lessons learned into designing normative processes that benefit sponsors (Downes-Martin 2016, Downes-Martin et al 2017).

The opinions expressed in this document are solely those of the author and do not represent the policy of any organization.

DISCUSSIONS DURING THE ANALYSIS PROCESS

Although small group discussions are known to provide benefits, research into group psychology indicates that group decisions following small group discussion also suffer from significant malignant distortions from those that the individuals would make without discussion. If an analysis is meant to inform sponsor decision-making then a normative analysis process (Downes-Martin 2018) is required, one that consciously takes into account and mitigates the malignant distortions.

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[1] During this talk references to "analyst" and "sponsor" also apply to the senior leadership of their respective organizations. Senior leadership retains responsibility for delegated decisions.

MOTIVATION FOR THE DESIGN GAME

The opposite of a "valid and useful analysis" is not an "invalid and not useful analysis", it is "an analysis that appears valid and deceives the decision maker into making poor decisions based on the analysis". Looking at valid and useful analyses gives us characteristics to seek (best practices) and behaviors that interfere with those characteristics to avoid (lessons learned). By looking at analyses that are deliberately designed to be malign (deceptive) we may identify additional characteristics to explicitly avoid in process design that are not obvious from looking at a list of characteristics to seek. Hence we engage in the "analysis process design game" thought experiment between a malign Red and a benign Blue player.

Blue's opponent in the design game will come from one or more of the designer's chain of command, the sponsor's chain of command, and senior members of the analysis team, all of whom are tempted to interfere in the analysis, albeit possibly with the best of intentions (Downes-Martin 2014). Note that three risk factors have been identified as present in nearly all cases of scientific fraud.[2] 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).

For serious national security related analyses, it would be irresponsible to assume that senior military officers and civilian executives are immune to these risk factors, even inadvertently. 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 may also be under career pressure from their organizations and communities to support funded programs of record and preferred concepts. Finally the analysis must either be demonstrably reproducible or the lack of repeatability explicitly noted and taken into account. Senior stakeholders will, with the best of intentions, attempt to nudge the design, execution, analysis and reporting down pathways they believe to be best for national security.

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)

THE DESIGN GAME THOUGHT EXPERIMENT

The Game Players

A major task of the analysis process designer is to identify the characteristics of people to invite to fill specific roles on the analysis team. Creating the analysis team is the first move in the game, where Red and Blue try to craft the team to their own purposes.

> **Exploiter (Red) Moves**. Invite senior people who are certain they already know the answers to the problem and those answers are the ones you want. Emphasize the importance of the analysis to their communities and bosses.

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[2] The word "fraud" is used by the scientific community when discussing intellectual impropriety by scientists. However, deliberate malfeasance is not required for the presence of deliberate intellectual distortion by senior people and is not assumed in this discussion. A better term for our purposes might be "deliberate intellectual distortion for non-cynical purposes".

Designer (Blue) Moves. Use "objectives analysis" for the initial engagement with the sponsor by focusing discussion on the four questions (Downes-Martin 2014):

1.   What do you want? (Identifies the objective)

2.   Why do you want it? (Identifies the real reasons behind the sponsor's stated objective)

3.   Why don't you have it? (Identifies hidden agenda items and barriers)

4.   How long are you in your current position? (identifies how much time is available for the analysis)

These questions mimic the flow of mission analysis in the military planning process and thus its language will resonate with the (military) sponsor. The discussion is designed to bring the sponsor and designer into agreement on the analysis objectives, the design, and therefore who should be on the analysis team. Blue then constructs the analysis team and monitors the characteristics of all analysts that Red puts on that team..

"Rule of Eight"

An observation I have made over many years and a large number of meetings that involve group discussion is that 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, and I do not know why the number is eight.[3]

> *Exploiter (Red) Moves. Be "inclusive" and invite everyone to each discussion, even people who you know disagree with your preconceived agenda (this will protect you against accusations of bias or of having a preconceived agenda). Then recruit your own team of six 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 are discussed and in a way that supports your agenda. 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.*

> *Designer (Blue) Moves. 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) compared to easily implemented normative processes. This is quite separate from my personal observation over the last few decades that most brainstorms do not even follow the primary rule for brainstorming, which is that there should be no criticism (positive or negative) of any idea that surfaces during the brainstorm. Within two minutes of the start of most brainstorms a senior member grunts or otherwise indicates approval or disapproval of some junior's idea – and the brainstorm is over. Furthermore, it has long been proven that a disciplined three-stage normative approach give superior results than those obtained from ill-disciplined methods such as brainstorming (even when run properly) or BOGSATS (Mullen et al 1991).

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[3] Although skilled facilitation can ensure that all members of a group larger than eight contribute, each member of a large group has less time to contribute.

Exploiter (Red) Moves. Prepare your "team of eight" within the larger group to raise pre-selected ideas you approve or disapprove of and to use body and verbal language to indicate approval or disapproval of them.

Designer (Blue) Moves. Make sure groups have a maximum of eight people and use the proven normative approach for each. 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 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.[4]

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 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 expert sanitation engineers about their cancer treatment instead of the single expert oncologist. The wisdom of crowds and superforecasting research is much more nuanced, with interesting areas to manipulate, than the popular understanding of them.

A more accurate summary of the research might be "A group of experts satisfying four requirements who make 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". Furthermore 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). The four requirements for a group to exhibit the "wisdom of crowds" rather than the "madness of mobs"[5] are (Surowiecki 2004, page 10):

> *"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 (Lorenz et al 2011).
>
> *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 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.[6]

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[4] See (Goal/QPC 1996) for a very detailed description of one method of implementing a normative process, and (Downes-Martin et al 2107) for an example of successful use of the normative method applied to a working group.

[5] My thanks to Paul Vebber for the term "Madness of Mobs" in this context.

[6] 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.

Exploiter (Red) Moves. 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 (Puppet Mastery web page).

Designer (Blue) Moves. Use the first and third requirement to recruit discussion group members. Use a normative approach to deal with the second requirement. If aggregating opinions use qualitative pro and con decision matrices, not popular junk arithmetic approaches (Puppet Mastery web page).

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 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).

Exploiter (Red) Moves. 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.

Designer (Blue) Moves. 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 analysis project. For each "subgroup of eight" have a single named individual in charge who is accountable for the subgroup decision (Downes-Martin et al 2018).

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 or 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.

Exploiter (Red) Moves. Understand the risk seeking or averseness of individuals in the group and give speaking preference to whichever best supports your objectives. 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 (Dorner 1996). Since research indicates that good leaders tend to be risk neutral when making decisions for others try to exclude them from the discussion -- putting them in a separate room of "greybeards discussing important topics" is a successful technique I have observed.

Designer (Blue) Moves. Identify good leaders for each "subgroup of eight" and hold them personally accountable. Design the discussion to include the probabilities, consequences, the need for risk neutrality and present each situation in terms of losses and gains. During post game analysis report on the risk seeking and aversion profiles of the members and caveat the decisions accordingly (Downes-Martin et al 2018).

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). Groupthink amplifies the effects of individual cognitive biases within a group setting and thus is of interest here. Every personal bias can be amplified within a group setting, the precise method determined by the details of the bias. However, given the large the large number of individual cognitive biases I provide one example only to give an idea of how to exploit and defend against their use, specifically "Preference Reversal" (Thaler & Tverskey 1990). Most people (not everyone, and not always) prefer a small sure gain to a larger uncertain gain when faced with a choice between gains and prefer to risk a larger loss to avoid the certainty of a smaller loss when faced with a choice between losses (Harley 2016).[7]

Exploiter (Red) Moves. 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.

Designer (Blue) Moves. 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 this specific example describe the situation, question or decision in terms of both gains and losses to the group.

CONCLUSIONS

It is tempting to complain that the recommended mitigations (i.e. "Blue Moves" during process design) are hard or time consuming, or that they are unnecessary given the honesty of senior military and civilian decision makers. National security is too important to engage in shortcuts with analysis process design and senior leaders are human. The following recommendations to Senior Stakeholders flow from the thought experiment for an analysis design game. Which of them are followed is driven by the importance of the analysis.

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[7] Obviously these tendencies can be reversed if the size of the gains and losses are sufficiently large with respect to each other. Exploiting these tendencies requires both art and science.

Top Level Recommendation
- Look for and counter "Red Moves" at any time during the project! Do "Blue Moves"!

During the Planning Phase for the Analysis Project
- Sponsor and Analyst use a formal objectives analysis

- Recruit the senior analyst to lead the team *through the process as designed*

- Recruit analysts who exhibit Diversity of Opinion, Independence and Decentralization

- Peer review the analysis design by people outside the analyst's organization

Review the Analysis Design for the following
- Discussion groups are no larger than eight people

- Each discussion group has a named leader responsible for the group's product

- Group decisions are either leader decided or based on sound Aggregation methods

- Discussion groups use normative processes

- Analysts are tasked to check for groupthink

- Senior stakeholders are properly involved, they are not isolated in a "greybeard room"

During the Analysis
- Execute the analysis as designed, do not try to change the objectives on the fly

- If objectives are changed, replan from the beginning

- Remind analysts of the ethical norms relevant to the organization at the start of each group session

- Design discussion groups to exhibit Diversity of Opinion, Independence and Decentralization

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ABOUT THE AUTHOR

Dr. Stephen Downes-Martin is a Research Fellow at the US Naval War College and an independent scholar analysing the use and abuse of decision support tools at the strategic, operational and tactical levels of warfare and business. His current research focus is how to manipulate analysis tools to deceive decision makers, how decision makers deceive themselves and allow themselves to be deceived, how to detect such manipulation and protect decision makers from them
(https://sites.google.com/site/stephendownesmartin/puppet-mastery).
His full bio and contact details are at https://sites.google.com/site/stephendownesmartin/resume.