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Exercise Solo Flight

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However beautiful the strategy, you should occasionally look at the results.

- Winston Churchill

INTRODUCTION

Since the terror attacks of September 11th 2001, the United States and its Western Allies have embarked on an unprecedented period of irregular warfare to defeat, degrade and deter state and non-state sponsors of terror throughout the world. In the roughly fifteen years that this campaign has been waged clear victory against these irregular foes has been elusive. Despite technological, economic, and numerical superiority, the US and its Western allies have been unable to achieve what would be considered strategic success in many if not all of the campaigns it has waged since 9/11. Although clear and convincing arguments can be made that it is not the sole responsibility of Western militaries to solve the complex strategic problems presented by the contemporary operating environment, the pragmatic approach would suggest that in an expeditionary context, the military is the element of national power that is best suited to act in contested and hostile environments. It is therefore highly likely that in the future conflict environment militaries will be asked to provide not only security, but to assist to the best of its abilities with development and diplomacy as well. “Trends and perils come in bundles and interact with nonlinear consequences. Military power, unfortunately, is highly relevant to many of the possible consequences of the existing trends.”¹ It is therefore logical to conclude that in future conflict, like the present day War on Terror, the military will be asked to continue to deal with complex problems presented throughout numerous lines of operation that include defence, diplomacy and development.

¹Colin S. Gray, “The 21st Century Security Environment and the Future of War.” *The US Army War College Quarterly – Parameters* 38, (Winter 2008-09): 25.

One of the many complex problems that the contemporary operating environment presents to military planners is the selection of appropriate operations assessment measures to ensure that the operations that are planned and conducted achieve their desired ends. This paper will first examine how operations assessment measures were historically selected, including a brief discussion of many of the metrics that were most commonly assessed in armed conflict in the 20th century. It will then demonstrate why many of these operations assessment measures are no longer considered appropriate, given the environment in which militaries are asked to operate today. Next, it will outline the design methodology that is emerging as a potential analytical tool to help solve the “wicked problems” that modern military planners have been faced with since the beginning of the War on Terror. I will argue that the inclusion of design in the military decision making process will allow military planners to better select the methods and metrics to be used in the creation of operations assessment criteria for modern military operations. Although not the panacea, appropriate operations assessment, and a responsive feedback loop, will provide commanders with evidence that the actions they have directed were either effective, or not. Perhaps more importantly, appropriate operations assessment will also outline not only a binary effective or ineffective equation but they will suggest the why. Armed with this feedback commanders will be enabled to better plan future operations, they will identify both operational and tactical best practices, and will ultimately have confidence that they are contributing to solving the problem.

OPERATIONS ASSESSMENT

Operations assessment is defined as “the activity that enables the measurement of progress and results of operations in a military context, and the subsequent development of

conclusions and recommendations that support decision-making.”² According to North Atlantic Treaty Organization (NATO) doctrine operations assessment can be further divided into measures of effectiveness (MOE) and measures of performance (MOP). MOE are defined as “a metric used to measure a current system state”³ while MOP differ in that they are “a metric used to determine the accomplishment of actions.”⁴ Although all three terms are related in the context of the NATO definitions they are each unique, operations assessment encompasses both MOE and MOP where MOE are providing indications as to whether the intended system state will be achieved, and MOP are measuring whether the planned actions are being carried out.⁵ In essence the MOE aims to qualify the effects to be achieved and measure results, while the MOP quantifies the activities being undertaken to achieve these effects and measure progress of activities being conducted. These NATO definitions will form the basis for the continued analysis of operations assessment throughout this paper, but it is instructive to note that there are significant numbers of differing and divergent opinions on both the meanings and the classifications provided within the cited NATO definitions.

In the classification and definition of operations assessment, MOE and MOP are often used interchangeably. Popular media and scholarly articles often categorize the conduct of operations assessment as presented in the definition above as “measures of effectiveness.” In the Canadian context, *Canadian Forces Joint Publication 5.0 (CFJP 5.0): The Canadian Forces Operational Planning Process (CF OPP)* treats operations assessment as a subset of mission analysis, in that “the commander has specific responsibilities in this stage to designate the end

²North Atlantic Treaty Organization, *NATO Operations Assessment Handbook, Version 2.0* (15 December 2012), 2-5.

³*Ibid.*, 2-6.

⁴*Ibid.*

⁵*Ibid.*, 2-6 to 2-7.

state and the criteria for success for the staff.”⁶ CFJP 5.0 further defines the end state as “the set of conditions that describe the achievement of policy goals”⁷ while offering transition conditions as an additional indicator by which to measure the effects of a campaign or operation. “At the strategic level, transition conditions define the expansion, conversion, reduction or exit of Canadian Forces from a national or multinational operation. At the operational and tactical level, transition conditions define the set of desired conditions at the conclusion of a campaign, an operation, or their stages or phases.”⁸ Although helpful, the inclusion of these definitions in CFJP 5.0 serve only to highlight the relative lack of consideration traditional military planning, like the CF OPP, focussed at the development and selection of operations assessment tools.

The Canadian Forces College (CFC) has created a reference document entitled *CF OPP Notes* where it attempts to add clarity to the process and outlines, “the staff develops initial DPs [decisive points], describing what effect is to be achieved or what event is to take place and what Measures of Effectiveness (MOE) apply.”⁹ The CF OPP notes further elaborate that a decisive point is described by many specific characteristics, one being MOE. The CF OPP notes also provide the following example, “Measures of Effectiveness (MOE), example build-up to xx% of TF in theatre or Adversary degraded to xx% or Adversary pushed back to within their own territory.”¹⁰ The CF OPP notes have made an attempt to provide some further guidance as to where and how Canadian Forces planners and commanders should consider and develop operations assessment measures, but this effort does not go far enough to codify and encapsulate the process within the current CF OPP structure. Between the difficulties associated with

⁶Department of National Defence, B-GJ-005-500/FP-000, *Canadian Forces Joint Publication 5.0: The Canadian Forces Operational Planning Process* (Ottawa: DND Canada, 2008), 4-5.

⁷*Ibid.*

⁸*Ibid.*, 4-5, 4-6

⁹Canadian Forces College, “CF OPP Notes,” *Operational Planning Process: OPP Toolkit*, (15 August 2013): 11.

¹⁰*Ibid.*, 12.

terminology described above, and the lack of an accepted and practiced method for considering and completing the operations assessment process within the current military decision making process it is not surprising that operations assessment measures are given little attention and are often treated as afterthoughts rather than as critical components in ensuring a successful mission outcome.

Historically, operations assessment measures have been selected from a narrow set of metrics that emerged primarily from the warfare concept of annihilation. Clausewitzian theory contends that “the purpose of fighting...was to destroy the combat capacity of one’s adversary; hence, the principle of destruction was the dominant characteristic of war.”¹¹ With this basic tenet in mind, many of the traditional methods used to assess effectiveness of military operations have been derived from one of two general categories: seizure of terrain, or destruction of enemy forces.

Since World War II, the analysis of warfare has primarily been based upon two major concepts of effectiveness. In the grand movement of military forces, the gaining and control of territory is considered success. Those who control the land control the resources, population, and legal structures within it. Taking the hill allows reconnaissance. Domination of the seas allows free shipping and movement of supplies. Control of the skies permits surveillance and restricts movement of the opposing forces. An observer only has to review joint doctrine publications from the early 1990s to see the emphasis that domination of territory is the US goal. Physical space is the battlefield.

The other traditional metric of success is the order of battle (OOB). Force size, composition, and capabilities matter when facing another force on the battlefield. Attrition predicts the outcome of battle, and the analyst assumes that one side only has to reduce the size and capability of the other side to a fraction of the original for success. Computer simulations subtract manpower, equipment, and thereby capabilities according to the OOB and lethality of each piece of equipment. They play the game like Battleship®, where so many hits would defeat the fighting object on the other side. Winning, for the analyst, is equated to having more left than the opponent when hostilities cease. Often, simulations ignore the psychological aspect and play out the campaign until near-complete annihilation

¹¹Antulio J. Echevarria, *Clausewitz and Contemporary War* (Oxford, UK: Oxford University Press, 2007), 133-134.

is achieved, neglecting the point at which surrender might occur once defeat seems inevitable. Still, attrition is the measure of success.¹²

The concepts of seizing and holding terrain, or denying the enemy the ability to do the same and the idea of attrition of enemy combat capabilities are almost intuitive means to evaluate success of an operation for military thinkers. This is particularly true when considering a conventional state on state or force on force armed struggle. The victor is ultimately the side left controlling the largest piece of terrain and by extension the resources and population that go with it or is the combatant with the greatest percentage of its combat power remaining at the cessation of hostilities. In extreme cases it may be the only combat force remaining at the cessation of hostilities. Operations assessment measures for this type of conflict were intuitive, and in most cases did not require detailed analysis or careful consideration of second and third order effects.

Modern operations assessment techniques were born out of the Second World War where recognition was made that operations research could assist in the war effort. These nascent techniques were carried forward in the US military context and greatly expanded upon during the Vietnam War.¹³

Although the genesis of what we now refer to as operations assessment began in World War II with the growth of operations research, the Vietnam era saw the emergence and practice of the concept take on a significance that was unprecedented. As the United States became immersed in a counterinsurgency fraught with ambiguities, nascent operations research and systems analysis (ORSA) analysts, among others, strove to find ways to measure progress on the ground. The main driving force behind this effort was Secretary of Defense Robert McNamara. A strong proponent of systems analysis and other quantitative methods, McNamara drove the idea that data collected on the ground could be used to develop accurate and precise measures of progress.¹⁴

¹²James Clancy and Chuck Crossett, "Measuring Effectiveness in Irregular Warfare," *The US Army War College Quarterly – Parameters* 37, (Summer 2007): 90.

¹³Emily Mushen and Jonathan Schroden, "Are We Winning? A Brief History of Military Operations Assessment," *CNA Occasional Paper Series*, (September 2014): i, <https://www.cna.org/sites/default/files/research/DOP-2014-U-008512-1Rev.pdf>.

¹⁴*Ibid.*

Despite these heady intentions, the disastrous results of the Vietnam War caused many within the US military and its policymakers to discount and dismiss the utility of extensive operations assessment measures, choosing instead to revert to simpler means to determine success of military operations. Through the bipolar period of the cold war, analysts, commanders and military planners from the West worked tirelessly to understand the order of battle, and the combat indicators that would indicate a certain Soviet formation, or force entity. Understanding the Soviet OOB allowed staff officers and analysts to keep a running tally of destroyed enemy combat capabilities and equipment during combat and therefore inferences could be made as to what percentage of combat capability remained for any given Soviet formation.

While these measures were extremely effective in the context of training to counter the Soviet threat of the day, they were also set-piece and involved little adaptation from one scenario to the other. “Such metrics assume large force-on-force battle in a Clausewitzian-style engagement. When one introduces irregular-style warfare, such as that used by terrorist, guerrillas, or insurgents, these MOE [operations assessment measures] are not sufficient to predict outcomes.”¹⁵ While effective in their day, the use of seizure of terrain and destruction of enemy forces as operations assessment measures in the contemporary environment are much less effective. While faced with the complex problems associated with contemporary operations, militaries are also now also faced with an increasingly demanding public.

The international community is seized with understanding the effectiveness of its interventions in places like Afghanistan. Effectiveness has become the meta-narrative of complex operations and the evaluation of which has captured the imaginations of most stakeholders involved in such activities, including the Government of Canada and Canadian non-state actors.¹⁶

¹⁵James Clancy and Chuck Crossett, “Measuring Effectiveness in Irregular...”, 90.

¹⁶Sarah Jane Meharg, *Measuring Effectiveness in Complex Operations: What is Good Enough* (Calgary, AB: Canadian Defence and Foreign Affairs Institute, October 2009), 1.

As a consequence, operations assessment has become not only a tool for the commander to assess the effectiveness of his military operations, it has also become the means by which the military is able to demonstrate to both its political masters, and the citizens it represents, that the operations it is undertaking are effective.

The complexities associated with the irregular conflicts that have become the norm in the contemporary operating environment have necessitated a new look at the way operations assessment is carried out. “In unconventional conflicts the theories of war are more complex, objectives and ways to achieve them are less straightforward, and notions of ‘winning’ and ‘losing’ are more difficult to define. As a result it is also more difficult to gauge and demonstrate progress in such conflicts.”¹⁷ The enemy that Western forces are facing in the contemporary battle space does not conform to the norms associated with conventional war. Thus things that were treated with certainty during the cold war, such as the size, strength and capabilities of enemy units are no longer understood with certainty. Unconventional enemy forces do not conform to a set order of battle, and therefore the measurement of the number of enemy combatants killed becomes much less useful as an assessment metric than in the conventional context. Moreover, in the case of classic counter-insurgency, control of the population becomes the central component to ensuring success rather than militarily defeating the enemy. In either case a classic operations assessment metric such as enemy body count, becomes almost irrelevant. “For the specific case of counterinsurgency, however, gauging and demonstrating progress is at least as important as in a conventional war, since the former tends to last longer and therefore requires sustained political and public support to conduct-and such support is often

¹⁷Jonathan Schroden, “Why Operations Assessments Fail – It’s Not Just the Metrics,” *Naval War College Review* 64, no. 4 (Autumn 2011): 89.

...tied to proof of progress.”¹⁸ In irregular wars, particularly when the conflict involves a non-state actor as adversary, the ability to declare victory by military defeat of the enemy force through attrition, and forcing them to accept terms of surrender is a highly unlikely outcome. In order to determine effectiveness of military operations, and thus provide the ability to declare some semblance of victory, or mission accomplishment, in an irregular military conflict effective operations assessment must be conducted. The methods employed in the past, and designed to assess effectiveness in a conventional state on state conflict are rudimentary, haphazardly located within existing Canadian military operational planning doctrine, and generally ill-suited for use in the contemporary conflict environment. Given the demonstrated importance of effective operations assessment measures a better operations assessment framework should be incorporated into the existing Canadian military planning process.

DESIGN THEORY

Design theory is an emerging concept that has recently been applied to the military planning system in the US. The methodology has its roots in architectural design and can be said to have its modern beginnings in the 1920s when a movement began with a “desire to produce works of art and design based on objectivity and rationality, this is, on the values of science.”¹⁹ These theories and the desires of the West to win WWII drove the commitment of the scientific community to assist in the war effort through all available means. “The application of novel, scientific, and computational methods to the novel and pressing problems of the Second World War”²⁰ led to innovations in design thinking. These war time conceptual innovations created

¹⁸*Ibid.*

¹⁹Nigel Cross, “Designerly Ways of Knowing: Design Discipline Versus Design Science,” *Design Issues* 17, no. 3 (Summer 2001): 49.

²⁰*Ibid.*

fields such as “operations research and management decision making techniques”²¹ that continued to gain a worldwide following through the 1960s. Design theory continued to evolve despite challenges in the 1970s. A leading design developer J.C. Jones stated: “In the 1970’s, I reacted against design methods. I dislike the machine language, the behaviorism, the continual attempt to fix the whole of life into a logical framework.”²² Design was seen to be taking on a mechanistic, process driven character that did not allow for the fusion of science, process and creativity. Despite periodic backlashes and evolutionary change design has continued to evolve as a methodology that can be applied to frame problems and assist in charting a course to the solution.

Design methodology, then is the study of the principles, practices and procedures of design in a rather broad and general sense. Its central concern is with how designing both *is* and *might* be conducted. This concern therefore includes the study of how designers work and think; the establishment of appropriate structures for the design process; the development and application of new design methods, techniques, and procedures; and reflection on the nature and extent of design knowledge and its application to design problems.²³

Given that design methodology had proven effective dealing with the varied problems faced by private sector industry, in 2002, members of the US Army at the School of Advanced Military Studies (SAMS) began to explore the concept of integrating design into the military planning continuum. They began this experimentation based upon evidence that “the elements of operational design might no longer be sufficient to enable effective planning and execution of campaigns and operations.”²⁴ The aim of the introduction of design into the military planning system was to allow for a better conceptual examination of the problem prior to beginning the detailed planning associated with the MDMP or CF OPP process.

²¹*Ibid.*

²²John C. Jones, “How My Thoughts About Design Issues Have Changed During the Years,” *Design Methods and Theories: Journal of DMG and DRS* 11, no.1 (January – March 1977): 50.

²³Cross, “Designerly Ways...”, vii-viii.

²⁴J. Greer, *et al.*, *Optimizing an Integrated Planning System* (Fort Leavenworth, KS: US Army Research Institute for the Behavioral and Social Sciences, July 2013), 1.

The fruits of their labour became known as the Army Design Methodology (ADM). “In March of 2010 the Army published its first doctrine for a planning system that comprehensively integrates conceptual and detailed planning.”²⁵ In addition the new planning system “integrates the Army Design Methodology (ADM) as the conceptual component of the integrated planning system with the Military Decision Making Process (MDMP) and Troop Leading Procedures (TLP)²⁶ as the detailed components of planning.”²⁷ The ADM aims to create three component parts that will form the basis from which an operational planning team can launch into a more traditional military decision making process, such as the CF OPP. The components are the Operational Environment Frame, the Problem Frame and the Operational Approach.²⁸ Figure 1 graphically lays out this approach.

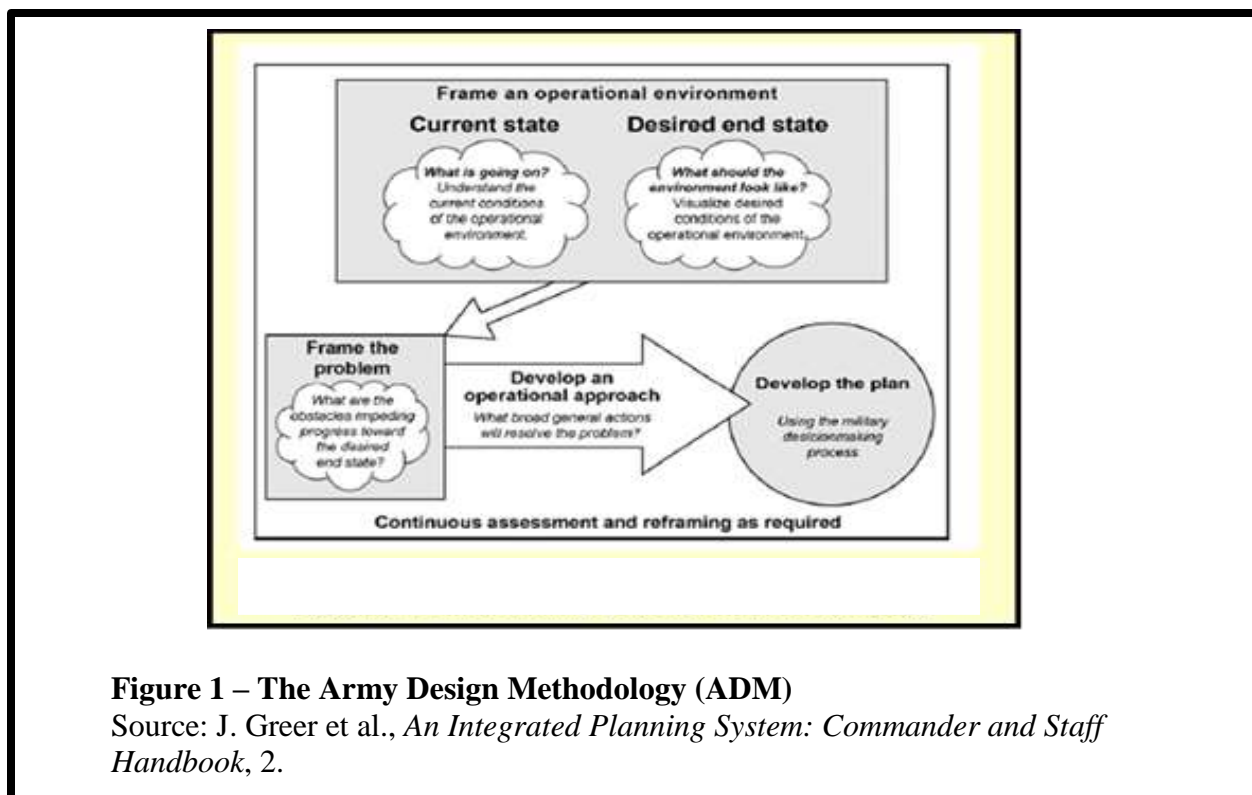


Figure 1 – The Army Design Methodology (ADM)

Source: J. Greer et al., *An Integrated Planning System: Commander and Staff Handbook*, 2.

²⁵ J. Greer, et al., *An Integrated Planning System: Commander and Staff Handbook* (Fort Leavenworth, KS: US Army Research Institute for the Behavioral and Social Sciences, May 2014), 1.

²⁶ Troop Leading Procedures (TLP) are extremely similar to the concept of *Battle Procedure* contained in Canadian Armed Force’s planning doctrine.

²⁷ J. Greer, et al., *An Integrated Planning System...*, 1.

²⁸ *Ibid.*, 2.

Each of the three components are to be devised by the commander and the whole of his or her staff with a view to ensuring that the problem that is defined within the conceptual analysis of the ADM is thoroughly understood by all involved in the planning process. The ADM aims to ensure that the problem being solved, while developing a plan with the MDMP, is the *right* problem. “The ADM is a continuous approach to understanding environments, problems, and solutions. The ADM is normally oriented on a campaign, major operation, or the unit’s deployment or long term operations, rather than the single task or mission focus of the MDMP and TLP.”²⁹ Ultimately, the inclusion of ADM in the integrated military planning system seeks to ensure that commanders and their staff understand more of, if not all of the myriad actors, and factors that will likely have either a direct or reverberating effect on their military operations. It is believed that this greater depth and breadth of understanding will help Western militaries better devise the plans that they enact at the operational and strategic levels of command.

In the Canadian context, at the operational level, CF OPP fills the roll that MDMP fills in the US planning system. In its current form the CF OPP is a five step process. Each step has certain inputs, and expected outputs that are generated primarily by the commander’s planning staff, with critical commander interaction at key junctures throughout the process. The steps or stages as they are referred to in doctrine are: initiation; orientation; course of action (COA) development; plan development; and finally plan review. Within the current CF OPP construct during the conduct of “Stage 2- Orientation,” many of the factors and actors that are intended to be examined by the ADM are examined in a parallel planning process entitled Joint Intelligence Preparation of the Operating Environment (JIPOE). In this step, a team of planners, typically, the J2 (intelligence officer) and his or her staff, sometimes assisted by other members of the

²⁹*Ibid.*, 3.

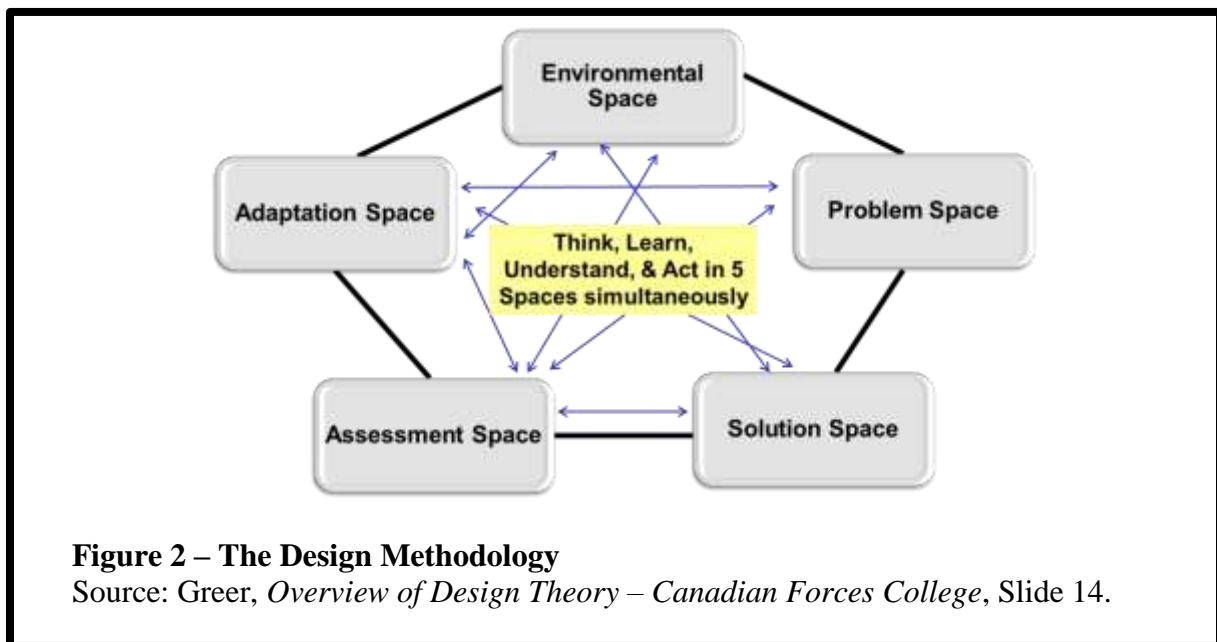
planning staff, are attempting to analyze the factors that may have an effect on operations. The JIPOE is a four step process, beginning with: define the operational environment; describe the impact of the operational environment; evaluate the adversary; and determine adversary COAs. These factors are analyzed and compiled by the J2 staff and are then fed back into the entire planning process with the production and presentation of the mission analysis briefing which completes stage two of the CF OPP.

While this process has proven effective in the past, it can be argued that the factors and actors analysis process is completed in relative isolation. In addition it is completed most often by a single branch of the staff planning team, often without the benefit of the experience and military education that many of the staff primaries possess in the other branches of the staff. In addition the current CF OPP process including the JIPOE is mechanistic, and although flexibility exists within the process to add, remove or emphasize certain stages or steps, the entire process is output driven. Staff officers can become convinced that the output of the briefing or deliverable at the end of any given stage is the primary focus of the process rather than ensuring that the analysis, and ultimately the plan that results is completed to the highest possible degree. Finally and perhaps most importantly the CF OPP, and in particular the JIPOE are often completed with minimal input from the commander. Although the commander initiates the process and intervenes at critical junctures, the CF OPP is meant to be a command initiated staff process that often marginalizes the involvement of the commander in the process, particularly within the stages and steps where detailed factors analysis is taking place.

The concepts of design, as embodied by the ADM in the US context, aim to not only deepen the levels of factors analysis conducted during military planning, they directly address many of the issues highlighted above as shortcomings of the current MDMP or CF OPP process.

Design intends to have maximal involvement of the commander and the majority of the staff while considering the factors and actors that may influence military operations. Design also promises to focus less on the production of standardized deliverables and more on the visualization of the problem and the operational design concept that is the solution.³⁰ ADM aims to ensure that the conceptual framing of the problem, traditionally completed by few within a planning staff is completed prior to the commencement of the practical planning associated with the MDMP, not as a parallel step within the process like the JIPOE. The ADM also becomes an intriguing solution to many of the planning concerns that revolve around the complexity of the contemporary operating environment.

Taking into consideration the arguments outlined regarding operations assessment and design theory, a natural synergy seems to exist between the two concepts. Moreover current ADM aims to conduct analysis in five major domains, the results of which will inform the MDMP process. These five domains are highlighted in figure 2 below, and they include a domain aimed at operations assessment entitled assessment space.



³⁰*Ibid.*, 6-9.

Utilizing the design methodology many of the shortcomings associated with the current methods used to select assessment measures can be improved upon. The design methodology aims to ensure a more thorough and holistic understanding of the problem space is achieved by all involved in the planning process. This enhanced understanding coupled with a dedicated study of operations assessment measures as espoused by the design methodology will undoubtedly improve the process of operational assessment within the context of the broader military planning apparatus. By encouraging the entire staff, including the commander, to dedicate time and effort to consider the MOE and MOP that are appropriate to the problem there is little option but to conclude that the selected assessment measures will provide better indications of the effectiveness of operations.

As previously argued, although the current CF OPP does require some consideration of operations assessment, the identification and selection of MOE is often considered less important than others outputs from the CF OPP process. The renewed focus that ADM places on operations assessment will likely result in better planning outputs in the assessment domain. Adopting a design methodology such as the ADM within the Canadian Armed Forces operational planning construct will offer a viable and innovative solution to the shortfalls previously highlighted that relate to operations assessment. In an article entitled *Operational Design: Promise and Problems*, Adam Elkus and Crispin Burke effectively argue that design will help to provide more certainty for military planners, in a world where clear strategic policy has become a rare commodity. “The search for a grand strategic policy can sometimes resemble the search for the Holy Grail or the fountain of youth—a quest for a religiously desired object that always remained out of reach yet tantalizingly close to true believers”³¹ They continue and explain that the ideas

³¹Adam Elkus and Crispin Burke, “Operational Design: Promise and Problems,” *Small Wars Journal*, (2010): 6, <http://smallwarsjournal.com/blog/journal/docs-temp/362-elkus.pdf>.

of strategic holism, cognitive flexibility and the larger framing of the problem that results from the design process only serve to enhance the resulting plan.³² These same attributes will also serve to enhance the planning outputs that relate to operations assessment. The broader framing of the problem that results from the design methodology will enhance the operational and strategic appreciation of the mission throughout the staff. In turn this will lead to better selection of MOE and MOP.

Assessment at the operational and strategic levels typically is broader than at the tactical level (e.g., combat assessment) and uses MOEs that support strategic and operational mission accomplishment. Strategic- and operational-level assessment efforts concentrate on broader tasks, effects, objectives, and progress toward the end state. Continuous assessment helps the JFC and joint force component commanders determine if the joint force is doing the right things to achieve objectives, not just doing things right. The JFC also can use MOEs to determine progress toward success in those operations for which tactical-level combat assessment ways, means, and measures do not apply.³³

The enhanced cognitive horsepower committed to the analysis of all of the factors to be examined by the staff planning team while completing the design methodology will result in more appropriate assessment measures being selected. The larger, holistic frame within which the design team is considering the problem will also lead to the selection of assessment measures that account for higher order effects. The inclusion of the design methodology within the Canadian Armed Forces planning spectrum will ultimately result in creating better assessment criteria for the complex problems that exist within the contemporary operating environment.

As a result of the relative naissance of the ADM few studies have been completed to empirically validate the theoretical advantages highlighted above. From a conceptual standpoint there is little doubt that the inclusion of a process similar to ADM in the Canadian Military planning process will result in a deeper more comprehensive understanding of the problem the

³²*Ibid.*, 12-14.

³³Department of Defense, *Joint Publication 5.0: Joint Operation Planning* (Washington, DC, 11 August 2011), D-6, http://www.dtic.mil/doctrine/new_pubs/jp5_0.pdf.

military is being asked to solve. It stands to reason that this deeper understanding would include the assessment measures being selected and applied to a given operation. Several operational examples were presented in the two studies co-authored by Jim Greer, where US Army Commanders and staff deployed to Afghanistan utilized the ADM as a part of their planning process. Those that used ADM felt that the outputs from their planning efforts were more effective than if they had employed MDMP or TLP alone³⁴. Although not conclusive, the evidence presented through testimonial of practitioners who applied the ADM corroborates the theoretical arguments presented earlier. In cases where ADM was been applied, those that utilized the theoretical planning approach prior to completing their detailed planning felt it generated better results than had they not.³⁵

CONCLUSION

For over a decade, the United States and its allies have been waging a war across many continents against a stateless enemy. The War on Terror has defined contemporary warfare, and with it numerous concepts have re-emerged as points of focus for the US and its Allies. While the basic nature of warfare has not changed, the way it is conceptualized has evolved. The term hybrid warfare has been created to describe the contemporary threat, while the style of warfare referred to as “irregular warfare” has become regular in its occurrence. The challenges of irregular warfare, coupled with the realities of limited war have made it exceedingly difficult for Western nations to fight contemporary wars to a point where clear victory is achieved. In these circumstances the ability to devise strategic solutions to complex problems has become ever more important. The application of the concept of “wicked problems” to the operational and

³⁴J. Greer, *et al.*, *Optimizing an Integrated...*, 94 and 124-125.

³⁵*Ibid.*, 29-30.

strategic challenges that face Western militaries today has resulted in a re-evaluation of the planning tools that are used by militaries to devise solutions for their problems. Much good work has been done which validates the continued applicability of planning tools such as the CF OPP or the US MDMP. Although these tools have continued to prove effective, numerous shortcomings have been highlighted and solutions have been forthcoming. One such concern was the apparent inability of Western forces to demonstrate effectiveness over time in theatres, specifically, Afghanistan and Iraq. The concept of operations assessment took on a new significance, not only were assessment measures helping commanders determine the effectiveness of their operations, they were directly influencing the public perception of these wars both domestically and abroad. Western militaries were being asked to demonstrate progress in meaningful ways for many reasons. What was soon discovered was that the way militaries had measured effectiveness in the past, primarily through seizing and holding terrain, or through the mathematical elimination of enemy combat power, were not very effective in the irregular wars that the West was now involved: new measures had to be devised. Although, much effort was put forward, ultimately many of the metrics and measures that were created to show progress relied more upon tactical task completion than strategic success.

Operations assessment is but one of the shortfalls recognized with the military decision making process (MDMP) or Canadian Forces Operational Planning Process (CF OPP) as they relate to creating operational and strategic solutions to the complex problems faced in the contemporary operating environment. It was widely recognized that although the CF OPP and MDMP were very good at producing detailed analysis for plans, they failed at allowing for non-linear conceptual consideration of the problem. One solution that was presented and adopted by the US Army and has since been adopted by many of its Western allies is the concept of design,

as portrayed through the Army Design Methodology (ADM). ADM is meant to focus the effort of the entire planning team on analyzing the environment, the problem and the operational approach to the solution.

The arguments presented throughout this paper suggest that the implementation of a design methodology similar to the ADM as a pre-cursor to the planning completed as part of the CF OPP would result in, among other advantages, a better analysis of the methods and metrics employed for operations assessment. The renewed focus that design methodology places on understanding the problem, and the holistic, team approach to creating the operational solutions that will inform the detailed planning will result in better outcomes. The conceptual arguments clearly favour the inclusion of a process similar to the ADM within the Canadian Forces planning system. Additionally, even as a new planning tool, practical evidence is available that suggests the inclusion of ADM within the US Army planning system has produced favourable results. Although the future is uncertain, the frequency of Western involvement in irregular conflict throughout the world is a likely prospect. The demands placed upon Western military forces to demonstrate success while conducting operations in the future will require an adaptive, thoughtful, and creative approach. The design methodology encourages creative solutions to complex problems. It shows significant potential to assist commanders and planning staff in devising effective operations assessment methods, measures, and techniques.

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