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QUESTION FROM AN INFANTRY OFFICER: WILL MY PEERS AND I BE READY FOR DESIGN THINKING?

Maj Jean-François Ferland

JCSP 43 DL

Exercise *Solo Flight*

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INTRODUCTION

Hybrid warfare, irregular warfare, Megacities, counterinsurgency, unrestricted war, global jihad, cyber and space domain, technological advancements… Some military experts argue that today's armed conflicts are more complex than yesterday's and they will be even more complex in the future. Furthermore, some of them believe that our actual military problem-solving process is inadequate to deal with such complexities and even suggest innovative methodologies to tackle these "wicked" problems. Design in military planning or design thinking is one of these innovative approaches. The hype about design is such that it has already made its way onto the Canadian Armed Forces (CAF) Joint Command and Staff Program (JCSP). Who knows, it may even be embraced by Canadian doctrine in a not so distant future.

For the purpose of this research let's make two key assumptions: first, design in military planning is the "Cadillac" of military problem-solving methodology; and second, design will become part of doctrine. Are we ready for design? If we look at it uniquely from a professional development / training perspective and in its current construct, the CAF does not provide all the knowledge and skills required to its future leaders and staff officers to expertly use design in military planning. To substantiate this argument will first define those knowledge and skills required for design thinking. We will then compare these findings with the CAF professional development model to see if it meets the required performance objectives to generate a certain "expertise" in design. But before we start with the core of the subject, let's start with a brief introduction on design in military planning.

DEFINING DESIGN IN MILITARY PLANNING

This section will provide a brief introduction to design in military planning to set the stage for the next section. As this introduction is quite brief, some readers who are not familiar with the topic may benefit from consulting additional material. In the bibliography, the articles written by Banach and Lauder, amongst others, can serve this purpose well.

Design in military planning or design thinking has yet to be adopted in Canadian doctrine. If we look at the joint doctrine, keeping in mind that the reference is dated (2008), such a concept is absent.[1] Canadian Army doctrine uses terms such as operational design but they have a different meaning than design in military planning. Where the latter is about framing the environment, the problem and developing a design concept, Army doctrine defines it as the whole planning process (from mission analysis to campaign plan development) and lack the comprehensives of design in military planning.[2] Even though absent from Canadian doctrine, design in military planning is taught on the JCSP for the candidates who have selected the Advanced Joint Warfighting Studies.

According to U.S. Army doctrine, which greatly influences JCSP's curriculum on design, design is defined as follow:

> *Army design methodology* is a methodology for applying critical and creative thinking to understand, visualize, and describe problems and approaches to solving them (ADP 5-0). Army design methodology is particularly useful as an aid to conceptual planning, but must be integrated with the detailed planning

[1] Government of Canada. *Canadian Forces Joint Publication 5.0, The Canadian Forces Operational Planning Process*. April 2008.

[2] National Defence. *B-GL-300-001/FP-001, Land Operations*. 1 January 2008: 6-3 – 6-4.

> typically associated with the MDMP [what the Canadian Army calls the Operational Planning Process] to produce executable plans.[3]

Design in military planning is a collaborative effort in which the commander plays a central role. "Critical thinking captures the reflective and continuous learning essential to design. Creative thinking involves thinking in new, innovative ways while capitalizing on imagination, insight, and novel ideas."[4] This approach allows for a holistic understanding of the environment and the problem (framing) and the development of innovative solutions. Finally, design in military planning is an iterative process.

KNOWLEDGE AND SKILLS FOR DESIGN PRACTITIONERS

General

In this section, will identify the knowledge and skills required to develop a design practitioner; someone who can effectively contribute as a design team member and even lead a team. Design practitioners and leaders must be "critical and creative thinkers, culturally aware, effective communicators and confident leaders of operational planning teams [and must be] able to employ comprehensive approach to complex problem solving."[5] Shaping and educating future design practitioners, according to Col (Ret) James Greer, calls on "critical & creative

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[3] U.S. Army. *ADRP 5-0, The Operations Process*. Headquarters, Department of the Army, Washington, DC, 17 May 2012: 2-4 – 2-5.

[4] U.S. Army. *FM 5-0, The Operations Process*. Headquarters, Department of the Army, Washington, DC, 18 March 2011: 3-1.

[5] Colonel Stefan J. Banach. "Educating by Design: Preparing Leaders for a Complex World." *Military Review* 89, no. 2 (March-April 2009): 99.

thinking, history & culture, planning theory, problem theory, the philosophy of design, learning theory, system theory, leadership and practical experience.[6]

A Literature review on the topic, focussed mostly on military application of design, has allowed us to identify and consolidate those knowledge and skills; results which will be presented below. This information has served as the basis we used to develop a broad and narrow design course curriculum option.

Theoretical foundations

Design is nested and draws on theory from various discipline and is what brings all its substance to the methodology and its outputs. Design is obviously dependent on military theory but also draws on "civilian research in design theory, complex system science, soft systems, political science, anthropology, communication theory, historiography, leadership, linguistic, organization theory, psychology and philosophy.[7]

The table below show's Peter Checkland's model for the organized used of thoughts which describes the relationship between theory, methodology and practice. Education on theory provides design practitioners with and "intellectual framework (F)", a tool box, which can be used with a certain "methodology (M)" to a certain problem set, or "area of application A". "Having used M, then we may hope for, and may reflect upon what learning has been acquired,

[6] Colonel (Ret'd) Jim Greer. Overview of Design Theory. Canadian Forces College Presentation. (April 2015)

[7] U.S. Army School of Advanced Military Studies. *Art of Design, Student Text, Version 2.0*. Accessed on 25 May 18. http://usacac.army.mil/cac2/CGSC/events/sams/ArtofDesign_v2.pdf. 34,40.

learning about all three elements: F, M and A." This is key for learning organisations facing complex problems.[8]

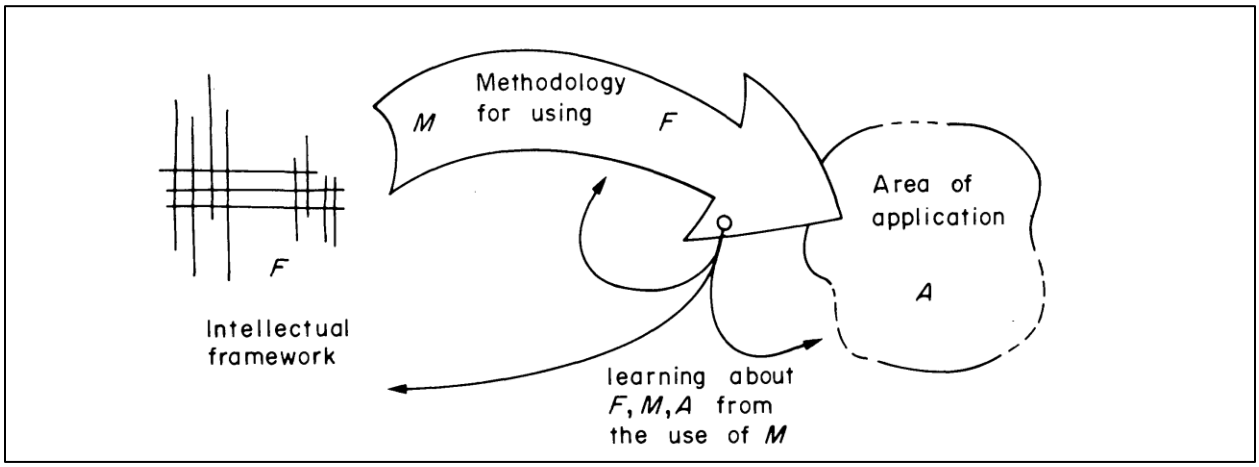

Figure 1: Peter Checkland's model for the organized used of rational thoughts.
Source: Checkland, *From Optimizing to Learning: A Development of Systems*, 758

Communication

Since design tends to be used to address complex problems, is complementary to the planning process and by nature is a collective process, communication skills are essential for design practitioners. During the design, the art of dialogue and discussion are key to promote team learning and gain a in depth appreciation for the problem set. On one end, dialogue allows for a "free and creative exploration of complex and subtle issues, a deep "listening" to one another and suspending of one's own views"; and on the other end, discussion allows for a healthy debate of ideas.[9] In this collective setting, which promotes the exchange of ideas,

[8] Ibid., 7; and Peter Checkland. "From Optimizing to Learning: A development of Systems Thinking for the 1990s." *The Journal of the Operational Research Society*, Vol. 36, No. 9 (September 1985): 758.

[9] U.S. Army School of Advanced Military Studies. *Art of Design, Student Text, Version 2.0*. Accessed on 25 May 18. http://usacac.army.mil/cac2/CGSC/events/sams/ArtofDesign_v2.pdf. 45.

drawings enable "a reflective conversation with the situation".[10] The design team must also be capable of synthetizing those complex ideas to for delivery to the planning team or external audiences. "Design deliverables should achieve a fine balance between a deep understanding and the ability to explain in the organization's preferred language."[11] Finally, design practitioner must have an appreciation for strategic communications in order to support the commander's operational approach.[12]

Leadership and Team Dynamics

Design being a "collective sport", practitioners and leaders must understand and be able to apply key principles to maximize the groups potential. Some of the skills, knowledge and attributes required for leaders in design are also applicable to individual members of the team. In comparison to OPP, design calls for a different type of leadership especially as it pertains to the relationship between the commander and the staff: a commander must be confident, "promote an egalitarian exchange of idea" and be capable of "fearlessly cultivate dialogue, collaboration, and clash."[13] Leaders and participants must value and positively contribute to that collaborative approach and be able to engage in dialogue. Humility and a sense of fallibility are key attributes to engage in meaningful, beneficial and healthy discussion.[14]

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[10] Ibid., 114.

[11] Ben Zweibelson. "Seven Design Theory Considerations." *Military Review* 92, no. 6 (November-December 2012): 86.

[12] Colonel Stefan J. Banach. "Educating by Design: Preparing Leaders for a Complex World." *Military Review* 89, no. 2 (March-April 2009): 99.

[13] Matthew Lauder. "Systemic Operational Design: Freeing Operational Planning from the Shackles of Linearity." *Canadian Military Journal* 9, no. 4 (2009): 45; Colonel (Ret'd) Jim Greer. Overview of Design Theory. Canadian Forces College Presentation. (April 2015); and Lieutenant-Colonel Celestino Jr. Perez. "A Practical Guide to Design, A Way to Think About It and a Way to Do It." *Military Review* 91, no. 2 (March-April 2011): 45-46.

[14] Lieutenant-Colonel Celestino Jr. Perez. "A Practical Guide to Design, A Way to Think About It and a Way to Do It." *Military Review* 91, no. 2 (March-April 2011): 45-46.

For this collaborative work to be effective, design practitioners need to be aware of the factors which may have positive and negative effects on the group dynamic and their output. Design teams need to be aware of their collective limitations, their collective bias and filters while also being aware of the "common cognitive traps" which may skew their understanding of elements of the systems and prevent their learning.[15] The team also needs to be able to recognize and identify signs of group dysfunctionality before it can impact their understanding of the situation or the quality of their output.[16]

Culture

The complex problems facing the design practitioners will include a human dimension and is likely to occur away from home. It is therefore important for practitioners to understand the effect culture can have on complex and adaptive systems, how culture can shape and influence those systems and how culture can influence the way these systems can be perceived. It would be unrealistic to think that through limited education a design practitioner could have an in-depth understanding of all cultures. What is key here, is for the student of design to grasp the key differences between his own culture and another one[17], be able to develop narratives which take into account cultural intricacies[18] and understand the cultural forces at play and their impact in complex and adaptive systems.[19]

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[15] U.S. Army School of Advanced Military Studies. *Art of Design, Student Text, Version 2.0*. Accessed on 25 May 18. http://usacac.army.mil/cac2/CGSC/events/sams/ArtofDesign_v2.pdf. 20, 45.

[16] Ibid., 45.

[17] Colonel Stefan J. Banach. "Educating by Design: Preparing Leaders for a Complex World." *Military Review* 89, no. 2 (March-April 2009): 99

[18] Lieutenant-Colonel Celestino Jr. Perez. "A Practical Guide to Design, A Way to Think About It and a Way to Do It." *Military Review* 91, no. 2 (March-April 2011): 47.

[19] U.S. Army School of Advanced Military Studies. *Art of Design, Student Text, Version 2.0*. Accessed on 25 May 18. http://usacac.army.mil/cac2/CGSC/events/sams/ArtofDesign_v2.pdf. 82.

System thinking

System thinking is a key part of the design methodology and way of thinking. System theories (general system theory, complex and adaptative systems and soft systems) are an essential foundation for design students.[20] This foundation provides practitioners with methodologies to learn about and understand the systems and its components. With theory and practice, practitioners should appreciate the system dynamics and its elements: "boundaries, flows, relationships, feedback loops, patterns, and attractors both between a system and its environment, and between parts of the systems."[21] Philosophy and critical and creative thinking allows the practitioner to keep an open mind and get a better appreciation for the system.[22] These all contribute to the narrative construction which "produces an understanding of the logic of what is observed" within and around the system.[23]

Critical and creative thinking

Critical thinking is another key component of the design methodology. The literature on the topic points to the fact that "there are competing schools of thoughts on what critical thinking is and how to best develop it."[24]

At the School of Advanced Military Studies (SAMS), education seems to play a major role in developing design students' critical thinking expertise as well as their creative thinking.

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[20] Ibid., 34; Matthew Lauder. "Systemic Operational Design: Freeing Operational Planning from the Shackles of Linearity." *Canadian Military Journal* 9, no. 4 (2009): 44; and Colonel Stefan J. Banach. "Educating by Design: Preparing Leaders for a Complex World." *Military Review* 89, no. 2 (March-April 2009): 99.

[21] U.S. Army School of Advanced Military Studies. *Art of Design, Student Text, Version 2.0*. Accessed on 25 May 18. http://usacac.army.mil/cac2/CGSC/events/sams/ArtofDesign_v2.pdf. 60.

[22] Ibid., 38-40.

[23] Ibid., 72,77.

[24] Colonel (Ret'd) Stephen J. Gerras. *Thinking Critically About Critical Thinking: A Fundamental Guide for Strategic Leaders*. Department of Command, Leadership, & Management, U.S. Army War College, August 2008: 2. Opinion also shared by Willingham and Wang and Huibin.

The array of theories to which SAMS student are exposed, allows them to look at various problems or systems through various perspective and different angles while at the same time planting the seed for innovative approaches or solutions.[25]

According to Peter A. Facione, to educate critical thinkers, certain skills need to be developed in combination to those natural dispositions for critical thinking. These skills include: interpretation; analysis; evaluation; inference; explanation and self-regulation.[26] Furthermore, according Daniel T. Willingham, metacognitive strategies ("little chunks of knowledge – like "look for a problem's deep structure" or "consider sides of an issue) may prompt the use of critical thinking.[27] Finally, the ability to critically think is domain dependant and unless you have expertise in the domain of interest, critical thinking will be difficult.[28]

From a creative perspective stand point, we have seen that education plays an important role in the development of these skills. But can creativity really be trained? According to Daiva Karkockiene, there is a "common consensus […] that creativity can be enhanced because human potentials can be fulfilled [but] efforts to enhance creativity will no expand one's inborn

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[25] U.S. Army School of Advanced Military Studies. *Art of Design, Student Text, Version 2.0*. Accessed on 25 May 18. http://usacac.army.mil/cac2/CGSC/events/sams/ArtofDesign_v2.pdf. 33-34.

[26] Peter A. Facione. *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessement and Instruction – Executive Summary*. Insight Assessment, 1990, 1998. Accessed on 30 May 18. https://www.researchgate.net/profile/Peter_Facione/publication/242279575_Critical_Thinking_A_Statement_of_Expert_Consensus_for_Purposes_of_Educational_Assessment_and_Instruction/links/5849b94508ae82313e7108de/Critical-Thinking-A-Statement-of-Expert-Consensus-for-Purposes-of-Educational-Assessment-and-Instruction.pdf. 3 and 5.

[27] Willingham, Daniel T. "Critical Thinking: Why is It so Hard to Teach?" *American Educator*, (Summer 2007). Accessed on 26 May 18. https://www.aft.org/sites/default/files/periodicals/Crit_Thinking.pdf. 13

[28] Ibid., 17; and Peter A. Facione. *Critical Thinking: A Statement of Expert Consensus for Purposes of Educational Assessement and Instruction – Executive Summary*. Insight Assessment, 1990, 1998. Accessed on 30 May 18. https://www.researchgate.net/profile/Peter_Facione/publication/242279575_Critical_Thinking_A_Statement_of_Expert_Consensus_for_Purposes_of_Educational_Assessment_and_Instruction/links/5849b94508ae82313e7108de/Critical-Thinking-A-Statement-of-Expert-Consensus-for-Purposes-of-Educational-Assessment-and-Instruction.pdf. 6

potentialities but can insure that potentialities are maximized." Furthermore "creativity training requires investing in six distinct interrelated resources" which are described in the table below. Finally, Karkockiene suggests that "techniques based on heuristic" may be relevant to creativity in problem solving.[29]

Table 1 – Creativity Resources

Creativity resources	**Description**
Knowledge	Knowing what is new, not just reinvented
Intellectual abilities	Generating Evaluating and executing ideas
Thinking styles	A preference for thinking in novel ways by one's own choosing
Motivation	Making a move, having fun
Personality	Determination and persistence in overcoming obstacles;
Environment	One that supports the investment game and spreads the risk

Source: Karkockiene, *Creativity: Can It be Trained?*, 53.

Practice

A common theme encountered during this research is that practice is the best way to learn design. Going back to Checkland's model (figure 1), practice allows for the student of design to deepen their learning as it relates to the theoretical basis they have, the methodologies and how and where it can be applied. Mentorship from experience practitioner is also key to increasing to enhancing the learning experience.[30]

[29] Karkockiene, Daiva. "Creativity: Can It Be Trained? A Scientific Educology of Creativity." cd-*International Journal of Educology*, Lithuanian Special Issue (2005). Accessed on 26 May 18. https://files.eric.ed.gov/fulltext/ED494897.pdf. 53-54.

[30] U.S. Army School of Advanced Military Studies. *Art of Design, Student Text, Version 2.0*. Accessed on 25 May 18. http://usacac.army.mil/cac2/CGSC/events/sams/ArtofDesign_v2.pdf. 27.

Design course curriculum option

With the information contained in this section we have developed a broad and narrow design course curriculum option. Key knowledge and skills have been grouped in performance objectives (PO) and supporting enabling objectives (EO) in table 2. This product should not be seen as a comprehensive and in-depth curriculum; it is a wave top perspective to create discussion and facilitate the comparison with a few CAF courses which will be conducted in the next section.

Table 2 – Design Course Curriculum Option

Performance Objectives	Enabling Objectives	Remarks
Understand theory and philosophy relevant to design	Understand theoretical foundations relevant to design in military planning	
	Understand key philosophical concepts and how they apply to design	
	Understand military doctrine	
	Understand design methodology	
Understand and apply communication theory and techniques relevant to design	Understand communication theory	
	Understand and employ dialogue and discussion techniques in a design context	
	Synthetize complex ideas into visual aids	
	Synthetize complex ideas and deliver through narratives and visual aids	
	Understand Strategic communications	
Lead and participate in a design group	Understand how leaders can positively and negatively influence the performance of a design team	
	Understand how as a design team member you can positively and negatively influence the performance of the team	
	Understand and identify the pitfalls of group dynamics and identify solutions	
Understand the impact culture can have in design	Introduction to anthropology	
	Understand cultural differences	
	Understand impacts of culture in society and on systems.	
	Understand links between narratives and culture	
Understand and apply systems thinking	Understand various system theories	
	Understand the links between framework and system theory	
	Employ theoretical foundation and methodology for the development of framework	
Employ critical thinking	Understand theory related to design in military	
	Understand and employ metacognitive strategies relevant to critical thinking	
	Understand and apply critical thinking skills	
Employ creative thinking	Employ creative thinking	
Employ design in military planning	Employ design in military planning	This PO sees the application of all skills and knowledge learned on the other PO. This includes a number of practical exercises including some that are link to a complete planning process.

COMPARING OUR DESIGN COURSE CURRICULUM WITH CAF COURSES

Methodology and case study

To define if the CAF professional development model gives future leaders and staff the knowledge and skills required to employ design in military planning effectively, we compared the POs and EOs described in the previous section with the various courses a CAF officer would go through during his or her career. For our case study, we used a typical infantry officer career path who went on JCSP DL and selected the Advance Joint Warfighting Stream. To define the scope of the courseware we were going to review, we looked at the CJOC and Task Force Kandahar (circa 2010-2011) order of battle. For example, CJOC's J5 is a Colonel, his regional J5s are Lieutenant-Colonels who employ Majors and Captains; and in Kandahar the J5 was a Lieutenant-Colonel. Therefore, we assessed that Majors and Lieutenant-Colonels would likely be a critical mass in a design team and would more than likely lead it. Since the CAF uses a progressive approach to professional development, we initially intended to review course curriculums from developmental period 3 to 1. As we moved down with our analysis through the various courses, we started to notice that their value added for developing knowledge and skills relatable to design was of limited value due to their tactical and technical nature. We finally settled on reviewing the following Qualification Standards and Training Plans (when available): Land Forces Unit Commanding Officer Course, JCSP, Combat Team Commander Course and the Army Operation Course. For the comparison, we simply looked at similarities in the CAF courseware and the design POs and EOs and, for the most part, did not focussed on the qualitative aspect of the courseware (breath, scope, delivery methodology, duration, etc.).

Results

Table 3 below provides a visual depiction of what we have found out in our comparison. Elements in red mean that the design PO/EO are not covered in the CAF course in question, in yellow is somewhat covered and in green is covered. The comparison tells us that about 17% of the design EOs are covered in the CAF courses, about 46% are partially covered and about 37% are not covered at all. Let's have a deeper look at these results.

Table 3 – Comparison - Design Curriculum Option and CAF Courses

Legend	
LFUCOC	Land Forces Unit Commanding Officer Course
JCSPC	Joint Command and Staff Program
CTCC	Combat Team Commander Course
AOC	Army Operation Course

Design Courseware Option		**Canadian Armed Forces Course**				
Performance Objectives	**Enabling Objectives**	**LFUCOC**	**JCSP**	**CTCC**	**AOC**	**Remarks**
Understand theory and philosophy relevant to design	Understand theoretical foundations relevant to design in military planning					
	Understand key philosophical concepts and how they apply to design					
	Understand military doctrine					
	Understand design methodology					
Understand and apply communication theory and techniques relevant to design	Understand communication theory					
	Understand and employ dialogue and discussion techniques in a design context					
	Synthetize complex ideas into visual aids					
	Synthetize complex ideas and deliver through narratives and visual aids					
	Understand Strategic communications					
Lead and participate in a design group	Understand how leaders can positively and negatively influence the performance of a design team					
	Understand how as a design team member you can positively and negatively influence the performance of the team					
	Understand and identify the pitfalls of group dynamics and identify solutions					
Understand the impact culture can have in design	Introduction to anthropology					
	Understand cultural differences					
	Understand impacts of culture in society and on systems.					
	Understand links between narratives and culture					
Understand and apply systems thinking	Understand various system theories					
	Understand the links between framework and system theory					
	Employ theoretical foundation and methodology for the development of framework					
Employ critical thinking	Understand theory related to design in military					
	Understand and employ metacognitive strategies relevant to critical thinking					
	Understand and apply critical thinking skills					
Employ creative thinking	Employ creative thinking					
Employ design in military planning	Employ design in military planning					

Understand theory and philosophy relevant to design. JCSP provides some theory which is somewhat relevant to design. On JCSP the focus is mostly on international relations, defense

and security, leadership[31] and operational concepts[32]. Not all theory elements suggested in our curriculum are covered on JCSP and in certain cases, for example leadership, the theory does not focus on design. Philosophy which plays an important role in creative and critical thinking, according to SAMS, is absent from the course curriculum. This lack of theory is a recurring theme across all POs and EOs.

Understand and apply communication theory and techniques relevant to design. Even though communication is at the core of JCSP, general communication theory is mostly absent from the curriculum. Through practice, dialogue, discussion and synthetization of complex ideas seem to be covered during exercise SHIFTING SANDS.[33] Since practice is limited, only one iteration, it will likely not be sufficient to make up for the missing theoretical foundation.[34]

Lead and participate in a design group. Even though leadership is covered on JCSP[35] it does not focus on leadership in the design and the unique approach necessary. It remains that some of the concepts conveyed on JCSP are relevant to design. The same can be said for the EOs focussed on group dynamics.

Understand the impact culture can have in design. Culture is covered on JCSP and Combat Team Commander Course. On JCSP the material focusses more on the general "cultural complexities"[36] than on general cultural differences. On the Combat Team Commander Course,

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[31] Canadian Forces College. *Joint Command and Staff Programme syllabus, JCSP RESID and JCSP DL*. Toronto. 1-10/19.

[32] Canadian Forces College. *Joint Command and Staff Programme (DL): CF548 – Advanced Joint Warfighting Studies, Course Outline*. Toronto, 2017-2018. A-2/24.

[33] Canadian Forces College. *Joint Command and Staff Programme: DS/CF548 – Advanced Joint Warfighting Studies, SHIFTING SANDS 2018*. Toronto, 2017-2018. 1.

[34] Ibid.

[35] Canadian Forces College. *Joint Command and Staff Programme syllabus, JCSP RESID and JCSP DL*. Toronto. 1-1/19.

[36] Ibid., 1-1/19, 1-10/19.

the scope seems relevant but the depth, due to the tactical nature of the course, may not provide all the knowledge needed.[37]

Understand and apply systems thinking. Theoretical foundations are key for this PO but seems to be mostly absent from JCSP. Furthermore, the scope of exercise SHIFTING SANDS seems to only provide an "awareness of several methodologies available".[38] There is a gap between awareness and understanding.

Employ critical thinking. Critical thinking is a key a component of JCSP but the link to design related theories is lacking. Also, different approaches to promote critical thinking such as philosophy are absent. The author will argue that the conclusions for this PO are debatable. More research focussed on the methods used to develop critical thinking could provide more clarity.

Employ creative thinking. Creative thinking is also part JCSP;[39] general education and the introduction to different and multiple perspectives seems to be the principal vehicle to develop these skills. A more dedicated focus on creative thinking and a more robust theoretical foundation could be beneficial in developing future design practitioners.

Employ design in military planning. JSCP culminating objective is about "becoming more agile with design thinking"[40] and "to develop students ability to understand design

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[37] National Defence. *A-P8-004-SCT/PH-B01, Training Plan, Combat Team Commander*. 20 July 2017. 19-20.

[38] Canadian Forces College. *Joint Command and Staff Programme: DS/CF548 – Advanced Joint Warfighting Studies, SHIFTING SANDS 2018*. Toronto, 2017-2018. 1.

[39] Canadian Forces College. *Joint Command and Staff Programme syllabus, JCSP RESID and JCSP DL*. Toronto. 1-3/19.

[40] Canadian Forces College. *Joint Command and Staff Programme: DS/CF548 – Advanced Joint Warfighting Studies, SHIFTING SANDS 2018*. Toronto, 2017-2018. 1.

thinking"[41] and being able to apply it. Considering the single iteration of design on JCSP and the elements covered in the other POs, understanding design thinking is a realistic objective.

Analysis

In a uniquely Canadian context, we have seen that JCSP, with its Advanced Joint Warfighting Stream, is the only vehicle that prepares CAF infantry officers to employ design in military planning.[42] With its curriculum, JSCP provides an "understanding of design" which will ultimately generate officers who will be able to contribute to a design team under mentorship. This "understanding of design" VS a certain expertise in design can be simply explained by a lack of theoretical foundations linked to and relevant to design, a lack of practice and JSCP's courseware orientation that is not directly tailored to design. It is fair to assume that post JCSP graduation, with practice and mentorship, officers could develop the level of expertise required to be able to lead a design team.

It is worth considering that the current approach chosen by the Canadian Forces College to teach design could actually be counterintuitive. The limited depth of the instruction and hands-on experience could lead to graduates approaching design in their next job more as a process instead of a holistic way of thinking and a methodology.

It is fair to assume that if the CAF does not embrace design as part of its doctrine, our current model for force generating design practitioners is likely to meet the demand. But what if design becomes part of Canadian doctrine? Understanding design may no longer suffice.

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[41] Canadian Forces College. *Joint Command and Staff Programme (DL): CF548 – Advanced Joint Warfighting Studies, Course Outline*. Toronto, 2017-2018. A-1/2.

[42] In a Canadian context, it is likely a fair assumption that the JCSP Advanced Joint Warfighting Stream is the only vehicle that prepares the whole officer corps, at the rank of Maj and LCol, to design.

Assuming that the CAF does not hold a large amount of design "experts" and that they are scattered all across the organisation, the on the job training approach to force generating design "experts" may not meet the CAF's demand. Some options that could be considered to meet this increased demand are to amend JCSP's curriculum, finding alternative force generating pipelines and/or increasing the throughput of some of these pipelines.

CONCLUSION

Let's go back to the title question and provide this young infantry officer with an answer. You will understand the design methodology but the CAF professional development model, in its current form, will not provide you with the knowledge and skills required to develop an "expertise" in the domain. Developing a certain level of expertise in design, being a way of thinking and a methodology, calls for a broad education cursus combined with hands-on experience which is currently insufficient on JCSP. Taking aside the value of design in military problem-solving, the reality is that understanding might be enough today. Since design has yet to be embraced by Canadian doctrine, there is no real need to change the CAF professional development model. If design thinking turns out to be what it is advertised to be and/or if doctrine is about to adopt this approach, the CAF may want to reconsider the way they generate design "expertise". A final word to our young infantry officer: if you are about to graduate from JCSP, keep in mind that you have just begun your learning journey on design.

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