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## INTELLECTUAL READINESS: THE EFFECTIVENESS OF THE CANADIAN ARMED FORCES PROFESSIONAL MILITARY EDUCATION SYSTEM IN A WORLD REDEFINED

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**JCSP 46**

**Solo Flight**

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## INTELLECTUAL READINESS: THE EFFECTIVENESS OF THE CANADIAN ARMED FORCES PROFESSIONAL MILITARY EDUCATION SYSTEM IN A WORLD REDEFINED

*It matters little whether the Forces have their present manpower strength and financial budget, or half of them, or double them; without a properly educated, effectively trained, professional officer corps the Forces would, in the future, be doomed to, at the best, mediocrity; at the worst, disaster.*

– General J.V. Allard, Chief of the Defence Staff, 1969

### INTRODUCTION

The unprecedented complexity and scale of the security challenges resulting from the COVID-19 crisis is the latest example of the need for a national security apparatus supported by educated critical thinkers.<sup>1</sup> The pandemic has worked to shatter the most basic assumptions on globalization, the economy and sovereignty. Post-pandemic, the security sector will likely be propelled into a redefined world: a persistent reliance on reflexes based on past experience will prove untenable due to the severity of the paradigm shift experienced in several sectors, including geo-politics.<sup>2</sup>

In the past decade, a series of systemic shocks have pressured Western powers, including the Canadian Armed Forces (CAF), to come to terms with the evolution of modern conflict and with the erosion of the traditional conceptualization of a physical battlespace. One example was the illegal annexation of Crimea and the invasion of Ukraine by Russia in 2014. The Russian dominance of the information space

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<sup>1</sup> Wesley Wark, “Health Intelligence, National Security and the COVID-19 Pandemic,” Global Affairs Institute, (March 2020), [https://www.cgai.ca/health\\_intelligence\\_national\\_security\\_and\\_the\\_covid\\_19\\_pandemic](https://www.cgai.ca/health_intelligence_national_security_and_the_covid_19_pandemic).

<sup>2</sup> Michel Duclos, “Is COVID-19 a Geopolitical Game-Changer?,” *Institut Montaigne* (Blog), 24 March 2020, <https://www.institutmontaigne.org/en/blog/covid-19-geopolitical-game-changer>.

demonstrated that hard military power could be circumvented by asymmetrical means of warfare.<sup>3</sup> This served as a wake-up call for otherwise complacent Western powers.

With the ongoing expansion of the notion of battlespace and the exponential growth of interconnections between domains, the CAF have yet to fully grasp the implications for national and global security. Discussions at the higher levels of leadership on the need to re-balance the Forces are ongoing, including a call for a re-assessment of the attributes of contemporary leaders. Militaries and academia across NATO allied nations and partners have been searching for ways to tackle the evolving nature of asymmetry, forced to leave behind a Cold War era perspective of warfare.<sup>4</sup> Old paradigms have been discredited, creating an urgent and widespread need for an adaptable workforce in the defence and security sectors. The workforce must be able to examine assumptions, evaluate different courses of actions, consider the implications of situations, and look not only to address the first order effects of actions, but also second and third order consequences when solving problems.<sup>5</sup>

Amongst considerations, the decentralization of decision-making is a recurring theme found in research on the subject of complexity and ambiguity. For some thinkers, the decentralization of decision-making is better suited to tackle the factors of the modern operational environment, including the rising operational and technical competence in

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<sup>3</sup> Stephen Ennis, "Russia in 'Information War' with West to Win Hearts and Minds," *BBC*, (16 September 2015), <http://www.bbc.com/news/world-europe-34248178>.

<sup>4</sup> Worley, D. Robert, "Asymmetry and Adaptive Command," *Military Review*, Vol. 81, No. 4, (July/August 2001): 38.

<sup>5</sup> Richard Paul and Linda Elder, *Critical Thinking: Tools for Taking Charge of Your Learning and Your Life*, (Upper Saddle River, NJ: Prentice Hall, 2001).

potential adversaries, and especially the blurring of the line between peace and conflict.<sup>6</sup>

The effectiveness of decentralized decision-making relies on the capacity of the Forces for critical thought.

The call for an officer corps capable of critical thought is not new. In 1934, Lieutenant General (LGen) James Breckenridge, commander of the Marine schools at Quantico, wrote:

It is my constant ambition to see the Marine officers filled with ambition, initiative, and originality; and they can get these attributes only by liberality of thought, - broad thought, - though that differs from precedent and the compulsory imprint of others. I want them to originate, - not to copy.<sup>7</sup>

LGen Breckenridge's comments are echoed by CAF leadership today.

In his 2017 seminal letter *How We Fight*, LGen Rouleau, Commander of the Canadian Joint Forces Command (CJOC), called for a re-imagining of the leader archetype, implying the need for an emphasis on intellectual attributes:

Our leaders will have to manage operations across large physical spaces as well as virtual and cognitive spaces. These leaders will need to see operations as a cohesive whole and integrate seamlessly across several domains. This may require personnel with attributes that vary from what we have looked for in the past and may call for different skills than those we have traditionally sought to develop. The CAF must assess what new demands may come from the operating environment and balance these with the many tried and true personnel lessons we've learned through our history as a military organization. (...) Education and training will also be an important aspect in our adaptation and must be combined with employment that builds experience across multiple domains to prepare our leaders to understand and face the many facets of environments they will operate in.<sup>8</sup>

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<sup>6</sup> M. Rouleau, *Letter to staff - How We Fight*, Canadian Forces Joint Operations Command, Ottawa, 2017, para. 23.

<sup>7</sup> James Breckenridge, *Letter to Colonel Smith*, (Julian C. Smith Papers, Private Papers Collection 188, Box 34), Marine Corps Archives, 21 November, 1934.

<sup>8</sup> M. Rouleau, *Letter to staff - How We Fight*, Canadian Forces Joint Operations Command, Ottawa, 2017, para. 24.

LGen Rouleau's comments illustrate that the institution is at crossroads in terms of desirable attributes for the CAF leadership, and the need for a re-evaluation of what constitutes military readiness.

For the purposes of this paper, 'intellectual readiness' is defined as the cognitive ability of CAF personnel to manage complexity and ambiguity while leading, planning and operating in a dynamic operational environment. This paper will examine CAF intellectual readiness from two dimensions: knowledge based on professional experience and education, and the institutional structures and culture shaping this knowledge. The analysis of the structural and cultural factors will be conducted with the goal of identifying key barriers to the improvement of intellectual readiness.

For the CAF to adapt to contemporary challenges, it is the opinion of LGen Rouleau that human and intellectual capital must be prioritized above procurement.<sup>9</sup> In this context, is the current Canadian Professional Military Education (PME) system geared toward building said intellectual capital in an optimal fashion? Is access to PME universal enough to allow for decentralized decision-making?

This paper argues that the lack of coordination between the CAF PME system and the operational components of the institution is an obstacle to the optimization of education programs. To illustrate this point, the lack of communication and coordination between the organizations responsible for force employment and the Canadian Defence

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<sup>9</sup> M. Rouleau, *Letter to staff - How We Fight*, Canadian Forces Joint Operations Command, Ottawa, 2017, para. 25.

Academy (CDA) will be discussed in the third part of this essay. Additionally, this paper argues that structural issues and the exclusivity of access to higher military education impedes the CAF's capacity to generate a deep pool of critical thinkers, required for sophisticated operational and strategic planning in the modern operational environment.

The study of CAF intellectual readiness will begin with an overview of concepts related to complexity, ambiguity and military education, establishing a theoretical baseline. The second section will consist of an analysis of the CAF's structural and cultural barriers to intellectual readiness. The third section will identify opportunities for increasing intellectual readiness in the short term, using existing resources.

## **PART ONE: OVERVIEW OF CONCEPTS UNDERLYING INTELLECTUAL READINESS**

This section of the paper establishes a baseline of theoretical concepts related to critical thought, decision-making, complexity and pedagogy. These theoretical insights build a framework to analyze CAF intellectual readiness in the following section.

The selection of concepts is based on the assumption that, in order for the military to tackle complexity and ambiguity in a dynamic setting, it must be prepared to decentralize decision-making. In turn, decentralization relies on a force bound by a collective understanding of a problem, from the lowest to the highest levels of leadership.



## Critical Thinking and Decision-making

The act of thinking critically is a mental process of analysis and assessment based on purposeful and reflective judgement<sup>10</sup>. Critical thought is inclusive of all possible processes of reflecting upon a concrete or abstract element in order to create a judgment that marries scientific fact and ‘common sense’. The following definition, an amalgam of several research pieces on thinking in general<sup>11</sup> and critical thinking<sup>12</sup>, is the best suited for linking critical thinking with decision-making: “Critical thinking is defined as disciplined, self-directed thinking displaying a mastery of intellectual skills and abilities - thinking about your thinking while you are thinking to make your thinking better.”

Today, individuals placed in decision-making roles are confronted with an increasingly complex and ambiguous world, with limited resources that constrain the decision space. A military educational institution’s primary purpose is to develop the leadership, management and decision-making skills of military professionals. Implicitly, the ability to exercise critical thought is necessary to develop these skills. The inclusion of critical thinking in a military educational institution is common, especially at more advanced levels, normally reserved for decision-makers involved in ‘leading the institution’.<sup>13</sup> Research suggests that critical thinking forms a system of linked and

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<sup>10</sup> Christopher Dwyer, Michael Hogan and Ian Stewart, “An integrated critical thinking framework for the 21st century”, academic paper, School of Psychology, National University of Ireland, 2013, abstract.

<sup>11</sup> Moshe F. Rubinstein and Iris R. Firstenberg, “Tools for thinking, Developing Critical Thinking and Problem-Solving Abilities,” *New Directions for Teaching and Learning*, No. 30, (Summer 1987).

<sup>12</sup> Kerry S. Walters, "Critical Thinking, Rationality, and the Vulcanization of Students," *The Journal of Higher Education*, (1990); Richard Paul, *Critical Thinking - What Every Person Needs to Survive in a Rapidly Changing World (Third Edition)*, (Santa Rosa, CA: Foundation for Critical Thinking, 1993).

<sup>13</sup> Department of National Defence, *Leadership in the Canadian Forces: Conceptual Foundations*. (Ottawa: Canadian Defence Academy, 2005), 97-118.

overlapping modes of thought.<sup>14</sup> In sum, the breadth of dimensions considered when assessing a problem will define the richness of contextualization and improve the quality of decision-making.

In the process of executing security operations, the lack of critical thinking in decision-making can, at worst, lead to mission failure but also miss opportunities to improve the quality of decisions being made. For military staffs, critical thinking elevates the quality of options developed and the probability of mission success: it increases the accuracy and depth of the analysis supporting the planning process. Instruments such as the Operational Planning Process (OPP) are useful tools to organize and display the projected outcome of complicated problems but cannot lead to effective problem solving on their own. Poor decision-making based on analysis lacking breadth and sophistication can exacerbate existing problems and create new ones.

Research suggests that the information explosion experienced in the past decade is one of the single most influential factors for changing the manner in which military and other security organizations function across the spectrum of conflict.<sup>15</sup> Technological advances in sensors, information processing and visualization makes a colossal amount of information available from the highest echelons of the chain of command, down to the

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<sup>14</sup> “Hamby lists the following modes of thought, such as anthropological thinking, sociological thinking, historical thinking, political thinking, psychological thinking, philosophical thinking, mathematical thinking, chemical thinking, biological thinking, ecological thinking, legal thinking, ethic thinking, musical thinking, thinking like a painter, sculptor, engineer, business person, etc.” B.W. Hamby, *The Philosophy of Anything: Critical Thinking in Context*, (Dubuque Iowa: Kendall Hunt Publishing Company, 2007).

<sup>15</sup> Slavko Angelevski, Metodi Hadji-Janev and Orce Popovski, “Developing skills for critical thinking in the process of security problem solving,” in International Scientific Conference - Security and Euroatlantic perspectives of the Balkans police science and police profession, (Štip, North Macedonia: Goce Delčev University Press: 2012), 387.

tactical elements operating in the field. In an increasing fashion, time contracts and space expands across physical and informational domains. Additionally, new technologies such as artificial intelligence will someday allow knowledge-level information to be automated through computer processing. In order to integrate these disrupting technologies, the military needs to be able to decentralize decision-making and ‘flatten’ organizational structures.<sup>16</sup>

Albert and Hayes reinforce the link between competence and independence in the execution of the mission, a key requirement to apply the *Power to the Edge*<sup>17</sup> command model: “when part of the force lacks the professional competence to contribute to the mission independently, centralized orders may be necessary.” Independent decision-making relies on an understanding of the approaches, on a capacity to recognize the right circumstances for application and how the different approaches can be applied depending on context.<sup>18</sup>

The requirement for the adoption of a decentralized model of decision-making, such as Albert and Hayes’s *Power to the Edge*<sup>19</sup> model, calls for a more accessible advanced military education as opposed to an approach focused on exclusivity and, to some extent, elitism.

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<sup>16</sup> Slavko Angelevski, Metodi Hadji-Janev and Orce Popovski, “Developing skills for critical thinking in the process of security problem solving,” in International Scientific Conference - Security and Euroatlantic perspectives of the Balkans police science and police profession, (Štip, North Macedonia: Goce Delčev University Press: 2012), 387.

<sup>17</sup> David S. Albert and Richard Hayes, “Power to the Edge: Command and Control in the Information Age.” Research paper, *DoD Command and Control Research Program*, 2005.

<sup>18</sup> *Ibid*, 33-34.

<sup>19</sup> *Ibid*.

## Complexity, Ambiguity and Wicked Problems

Wicked problems are ambiguous, hard to define and often associated with amorphous political, moral or professional issues.<sup>20</sup> These types of issues are dependent on diverse stakeholders and frequently lack consensus on the exact nature of the problem, which makes the identification of a solution so difficult. In contrast with wicked problems, tame problems are well-defined issues that have clearer solutions, tend to have precedent, and can be objectively right or wrong.<sup>21</sup>

Professors of design and urban planning Horst Rittel and Melvin Webber characterise wicked problems according to ten criteria, consisting of ten heuristic perspectives that contribute to the understanding of the nature of complex social planning issues, such as issues pertaining to national security, global affairs and defence policy.<sup>22</sup>

In *Wicked Problems and Social Complexity*, Jeff Conklin writes: “there are two common organizational coping mechanisms that are routinely applied to wicked problems: studying the problem, and taming it.”<sup>23</sup> In the CAF context, from dealing with internal structural and cultural issues to planning an air combat mission in Iraq or in Libya, the Canadian military has the responsibility to operate effectively within non-linear contexts, regardless of trade or rank. The tools currently used by the CAF to tackle

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<sup>20</sup> Thomas Ritchey, “Wicked Problems: Modelling Social Messes with Morphological Analysis,” *Acta Morphologica Generalis* (AMG), Vol. 2, No. 1, (2013), 2.

<sup>21</sup> *Ibid.*

<sup>22</sup> Horst Rittel and Melvin Webber, “Dilemmas in a General Theory of Planning,” *Policy Sciences*, Vol. 4, (1973), 161-167.

<sup>23</sup> Jeff Conklin, “Wicked Problems and Social Complexity,” CogNexus Institute, 2001.

wicked problems would be better suited for tame problems; tools such as the OPP are

CAF's primary means of 'taming' a wicked problem:

The CF OPP is a coordinated process to determine the best method of accomplishing assigned operational tasks and to plan possible future tasks. Planning may be inhibited by inadequate information, insufficient time and limited resources. The planning process is designed to optimize logical, analytical steps of decision making in conditions of uncertainty and ambiguity.<sup>24</sup>

The doctrine's definition of OPP implies that the tool consists of a 'taming mechanism' by design. The process generates a model of the problem, codified from a security perspective.

According to Rittel and Webber, OPP can be qualified as a 'classical system approach', is bound to fail if void of a deep understanding of the problem-set:

The classical systems approach ... is based on the assumption that a planning project can be organized into distinct phases: 'understand the problems', 'gather information,' 'synthesize information and wait for the creative leap,' 'work out solutions' and the like. For wicked problems, however, this type of scheme does not work. One cannot understand the problem without knowing about its context; one cannot meaningfully search for information without the orientation of a solution concept; one cannot first understand, then solve.<sup>25</sup>

Rittel and Webber highlight the shortcomings of a classical systems approach when tackling wicked problems. The requirement for a critical analysis of the context is also noted.

The utilization of linear systems approaches such as OPP to tackle wicked problems reinforces the need for intellectually empowered planners, capable to adapt to shifting complexities of a situation based on an deep and shared understanding of the

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<sup>24</sup> Department of National Defence, B-GJ-005-500/FP-000, *Canadian Forces Joint Publication 5.0* (Ottawa: DND Canada, 2008), 3-1.

<sup>25</sup> Horst Rittel and Melvin Webber, "Dilemmas in a General Theory of Planning." *Policy Sciences*, Vol. 4, (1973), 161.

context. Additionally, problem wickedness is a force of fragmentation.<sup>26</sup> The mitigation of fragmentation calls for a workforce proficient in managing diversity and social complexity.

Fragmentation is a concept illustrating a force that pulls apart something whole. In this case, fragmentation refers to an organization or system (e.g. national security apparatus) where people perceive themselves as separate instead of united, making the sharing of knowledge and information chaotic and scattered.<sup>27</sup> In a whole-of-government context, the requirement for collaboration in the management of wicked problems illustrates the high degree of social complexity. The complexity of collaboration between structurally and culturally diverse organizations acts as a fragmenting force, which makes effective communication challenging. The forces of fragmentation will be discussed further in the next part, the analysis of barriers to intellectual readiness in the CAF.

The proficiency in handling wicked problems cannot reside exclusively at the highest echelons of the modern institution and competence in this regard needs to be developed in the broadest manner possible.

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<sup>26</sup> Jeff Conklin, “Wicked Problems and Social Complexity,” *CogNexus Institute*, 2001, 3.

<sup>27</sup> *Ibid*, 2.

## **The Philosophy of Professional Military Education and Underlying Concepts**

The core task of the modern military education system, unlike the civilian counterpart, is to instill the will and the capacity to learn.” As philosopher Eric Hoffer theorises:

The central task of education is to implant a will and a facility for learning; it should produce not learned but learning people. The truly human society is a learning society, where grandparents, parents, and children are students together. In a time of drastic change it is the learners who inherit the future. The learned usually find themselves equipped to live in a world that no longer exists.<sup>28</sup>

With regards to education, Hoffer makes a crucial observation by distinguishing the passivity of ‘learned’ in contrast with the dynamic nature of ‘learning’.

The military institution, however, can fall victim to powerful internal cultural and structural pressures to teach ‘what to think’ as opposed to ‘how to think’. This approach to education hinders the military’s capacity to fulfill its task according to Hoffer’s perspective.

### A rejection of the warrior-scholar model: anti-intellectualism in the military

The military institution is fundamentally conservative and positivistic.<sup>29</sup> Professional credibility is bestowed based on experience over academic credentials. Experience provides empirical evidence, revered in the military, and dictates what is useful and what is ‘real’.<sup>30</sup> Although critically important, decisions based strictly on experience while rejecting a metaphysical perspective can lead down a treacherous path,

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<sup>28</sup> Eric Hoffer, *Reflections on the Human Condition*, (New York: Harper & Row, 1973), 22.

<sup>29</sup> Richard von Mises, *Positivism: A Study in Human Understanding*, (Cambridge: Harvard University Press, 1951), 5.

<sup>30</sup> Bernd Horn and Jeff Stouffer, *Educating the Leader and Leading the Educated: The Defence Learning, Education and Training Handbook*, (Winnipeg: Canadian Defence Academy Press, 2012), 2-4.

especially when confronted to situations hitherto unseen. British psychologist Norman Dixon, wrote:

Whether or not intellectual shortcomings lie at the heart of much military incompetence, the fact that a deliberate cult of anti-intellectualism has characterized the armed services. While its origins relate, as we shall see, to much deeper reasons for military mishaps than mere ignorance or slowness of mind, the fact remains that its effects have not been helpful. That generals and admirals between the wars denigrated progressive thinkers and poured scorn on men who wrote books which challenged existing practices must surely have tended to stifle any exercise of intellect by those who wanted to get on, and deterred the gifted from ever seeking a military career[...]"<sup>31</sup>

Dixon's powerful description of military incompetence points to the effects of a highly hierarchical structure: the stifling of critical thinking within the institution.

The culture of anti-intellectualism contributes to the lack of progress in the institutionalization of the importance of education within the military, especially in terms of the value of education for career progression. Horn mentions that, up to the end of the 20<sup>th</sup> century, the limited number of sponsored graduate education positions available were typically given to poor performers or for people reaching the end of their career.<sup>32</sup> This perspective can confidently be extrapolated to assignments to cadre positions in professional military education institutions.

Research outside the realm of military education offers useful considerations for relating to the importance of the assignment of high performers, not only to student

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<sup>31</sup> Norman Dixon, *On the Psychology of Military Incompetence* (London: Pimlico, 1994), 161.

<sup>32</sup> John Fraser, the Chairman of the Minister's Monitoring Committee expressed of the period of 1980s and 1990s, "a lot of [senior] officers felt it wasn't important to have a degree." John Fraser, interview with Dr. Bill Bentley and Colonel Bernd Horn, 21 February 2011. Former CDS, General Ray Henault admitted, "I remember the days when a person with a Masters or PhD were not considered warriors – they were seen as having gone over to the other side." General (retired) Ray Henault, interview with Dr. Bill Bentley and Colonel Bernd Horn, 9 November 2010.



billets, but to cadre positions in educational institutions. For instance, a study on American high school's K-12 supposes outcomes that are applicable to PME. Erik Hanushek, senior fellow in the Hoover Institution at Stanford University, highlights the strong correlation between teacher effectiveness and student learning: "The difference in student performance in a single academic year from having a good as opposed to a bad teacher can be more than one full year of standardized achievement."<sup>33</sup> In this sense, rather than a punishment, it would be beneficial to military institutions to incentivize high performers to participate in educating the next generation of leaders.

#### The pitfalls of indoctrination

Institutions such as the military excel at indoctrination, relying on the socialization and integration of customs, traditions, symbols and rites of passage <sup>34</sup>from the early stages of the professional military career. The collective socialization processes implemented throughout a military professional's career is very effective in setting values and establishing a shared worldview.<sup>35</sup> Through the process of socialization, this worldview becomes increasingly galvanized and it requires tremendous investment in time and resources to affect any change to this dominant logic. To this point, British military historian Liddell Hart noted: "the only thing harder than getting a new idea into

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<sup>33</sup> Erik A. Hanushek, "The Trade-off between child Quantity and Quality," *The Journal of Political Economy* 100, no.1 (February 1992), 84-117.

<sup>34</sup> Vanessa Brown and Alan Okros, "New Leaders, 'New Wars': A Reflective Approach to Applying Gender and Cultural Perspectives," in *Culture and the soldier: Identities, values, and norms in military engagements*, (Vancouver; Toronto: UBC Press, 2019).

<sup>35</sup> John Van Maanen and E.H. Schein, *Toward a theory of organizational socialization*, (Cambridge, Mass: M.I.T. Alfred P. Sloan School of Management, 1977), 38.

the military mind is to get an old one out."<sup>36</sup> With the emergence of information and communication technologies in the past two decades and its effects of society and knowledge, the need for the military to adapt to new educational paradigms is ever more pressing.

### Information and Communication Technologies (ICT) and the democratization of knowledge

The societal and cognitive impacts of the development of ICTs have been part of the academic discourse for many years as key disruptors of inequities in academic publishing and global information flows.<sup>37</sup> As a slow-moving, traditionalist institution, the military struggles to fully leverage ICTs to democratize knowledge, and improve intellectual readiness. This trend is compounded by the fact that higher education is still reserved for the 'elite' within the CAF. That said, access to a growing amount of academic publications still needs to be 'corralled' and organized with an aim that serves the institution's strategic objectives regarding the education of its workforce. While PME and PD are considered as a cohesive system, Inefuku argues, "True democratization and globalization of knowledge cannot exist without a critical examination of the systems that contribute to the production of scholarship."<sup>38</sup> Consideration for the effects of

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<sup>36</sup> Vanessa Brown and Alan Okros, "New Leaders, 'New Wars': A Reflective Approach to Applying Gender and Cultural Perspectives," in *Culture and the soldier: Identities, values, and norms in military engagements*, (Vancouver; Toronto: UBC Press, 2019).

<sup>37</sup> Harrison W. Inefuku, "Globalization, Open Access, and the Democratization of Knowledge", *EDUCAUSE Review* 52, no. 4 (July/August 2017).

<sup>38</sup> *Ibid.*

democratization of knowledge, if properly leveraged, can contribute to the military institution's progress towards becoming a 'learning organization'.

### The learning organization

The development of military education and the lessons learned from operational experience have an inherent interdependency. The history of operational art stems from military professionals' past experiences, which are transformed into knowledge by the PME system. PME is built anew by those who apply the theory and doctrine in the field in a circular, iterative process. Deprived of the rejuvenation brought by the integration of lessons learned, military education can be prone to obsolescence.

Joseph Lampel describes a learning organization through five indicators to demonstrate if an organization can be qualified as 'learning' or not:<sup>39</sup>

1. Organizations can learn as much, if not more, from failure as from success.
2. A learning organization rejects the adage "if it ain't broke, don't fix it."
3. Learning organizations assume that the people closest to the execution of the mission – those at the "coal-face" – often know more about important aspects of activities than their superiors.
4. A learning organization actively seeks to move knowledge from part of the organization to another, to ensure that relevant knowledge finds its way to the organizational unit that needs it the most.
5. Learning organizations spend a lot of energy looking outside their own boundaries for knowledge.

A review of Lampel's indicators brings to bear the friction between what he considers a 'learning organization' and the military, which as previously discussed, is a structurally hierarchical and culturally conservative, autarchic institution. In order to facilitate a

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<sup>39</sup> Joseph Lampel, *Towards the Learning Organization*, (London: John Wiley and Sons, 1995).

cultural shift towards the learning organization framework, a review of teaching methods, both for PME and PD would be helpful.

## **PART TWO: BARRIERS TO INTELLECTUAL READINESS WITHIN THE CAF**

Since the 1990s, PME and professional development have been the object of several studies and a series of reforms, which gained momentum following the *Somalia Affair*.<sup>40</sup> The scandal brought to light the importance of an educated and enlightened officer corps and the disastrous consequences of neglecting the intellectual readiness of leadership, from the tactical to the strategic level. As noted by Horn and Stouffer, the prioritization of developing the intellectual readiness of the officer corps tends to take a backseat in times of crisis, such as the military's more than decade-long involvement in Afghanistan.<sup>41</sup> Making intellectual readiness tangential in crisis contexts is counter-intuitive as the emergence of a crisis often coincides with a shift of paradigm in the battlespace, which would require an intensification of efforts to develop a common understanding of the new operational context.

The loss of momentum in education reforms of the 1990s has been allowed to take place due to the relative superficiality of the initiatives. Although the reforms included significant measures, such as the creation of the CDA and ministerial direction that all officers must hold a recognized undergraduate degree<sup>42</sup>, it appears that the

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<sup>40</sup> Young, Doug. Report to the Prime Minister on the Leadership and Management of the Canadian Armed Forces. Ottawa: Department of National Defence. 1997, 12; Richard Tod Strickland, *Crisis to catalyst: the strategic effects of 'the Somalia Affair' on the Canadian Armed Forces*, (Fort Leavenworth, KS: US Army Command and General Staff College, 2017), 45.

<sup>41</sup> Bernd Horn and Jeff Stouffer, *Educating the Leader and Leading the Educated: The Defence Learning, Education and Training Handbook*, (Winnipeg: Canadian Defence Academy Press, 2012), 5-6.

<sup>42</sup> *Ibid*, 4.

institution failed to address key cultural and structural factors impeding the CAF's efforts to further intellectually empower its force.

LGen Rouleau's *How We Fight* asks: "How can the CAF build leaders who are able to operate effectively in non-linear, persistent conflict executed in multiple domains? What does a pan-domain leader look like and how is he or she trained and educated?"<sup>43</sup> This question captures the essence of intellectual readiness in the 21<sup>st</sup> century: can CAF leaders tackle complexity and ambiguity effectively?

Seeking answers to this question, LGen Rouleau as Commander of the Canadian Joint Operations Center (CJOC), commissioned an in-house study, *To Train as We Fight*, published in 2019.<sup>44</sup> The study focused on an overview of the CAF training, professional development and education system. The use of surveys developed insight into the current status of the system from an operational perspective. Feedback was collected from deployed elements to identify factors affecting the performance of senior officers in various operational environments.

### **A Critical Analysis of the CAF Approach to Military Education**

The report for *To Train as We Fight* includes a critical analysis of CAF doctrine and studies pertaining to military training, professional development and education. Key references include, *Officership 2020*, underpinning the CAF Officer Professional Development System (OPDS), Canada's Defence Policy, *Strong Secure Engaged* (SSE),

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<sup>43</sup> M. Rouleau, *Letter to staff - How We Fight*, Canadian Forces Joint Operations Command, Ottawa, 2017, para. 31.

<sup>44</sup> Ghislain Letourneau, *To Train as We Fight*, Canadian Joint Operations Command, Ottawa, 2019.

and CDA's *Educating the Leaders and Leading the Educated: The Defence Learning, Education and Training Handbook*.<sup>45</sup>

The report indicates that deployed senior officers surveyed perceived education as a key weakness in achieving expected levels of performance while deployed on a mission.<sup>46</sup> The *To Train as We Fight* study reviews the current CAF education and training system from the perspective of the 2014 Chief Force Development (CFD) capstone document, Future Security Environment (FSE).<sup>47</sup> Three of the 72 implications for the CAF brought forward by FSE pertain to military training, professional development and education. Implication #54 is especially salient:

Career-spanning, focused, professional development and education on national security issues will be increasingly important. Understanding the mandates and capabilities of other government departments (OGDs) and agencies, and joint collective training, will be necessary to ensure CAF personnel are able to operate effectively as part of a comprehensive approach to resolving issues of Canadian national security.<sup>48</sup>

The considerations included in Implication #54 seem to be partially addressed through the graduate level education offered by schools under CDA. However, accessibility to these programmes is insufficient to achieve institutional proficiency in the modern operational environment.<sup>49</sup>

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<sup>45</sup> Ghislain Letourneau, *To Train as We Fight*, Canadian Joint Operations Command, Ottawa, 2019, 2.

<sup>46</sup> *Ibid.*

<sup>47</sup> Chief of Force Development, *The Future Security Environment*, Winnipeg, MB, Canada: 17 Wing Winnipeg Publishing Office, 2014, [http://publications.gc.ca/collections/collection\\_2015/mdn-dnd/D4-8-2-2014-eng.pdf](http://publications.gc.ca/collections/collection_2015/mdn-dnd/D4-8-2-2014-eng.pdf).

<sup>48</sup> *Ibid.*, 92.

<sup>49</sup> M. Rouleau, *Letter to staff - How We Fight*, Canadian Forces Joint Operations Command, Ottawa, 2017, para. 24.

### Elitism and access to graduate level education in the CAF

According to the study *To Train as We Fight*, Canadian Forces College (CFC)'s Joint Command and Staff Program (JCSP) and National Security Program (NSP) offer an adequate level of education and training to empower CAF senior officers in operations. It is noted, however, that access to these programs is limited.<sup>50</sup>

In his introduction to the JCSP syllabus, Rear-Admiral Cassivi, Commander CDA, describes the programme as follows:

The curriculum for the JCSP Residential Programme emphasizes military operations and operational planning, the study of leadership and command, and an understanding of the context of defence through national and international studies. It allows students to develop a more in-depth understanding of these broad themes through the introduction of three streams of minor curricula: Advanced Joint Warfighting Studies, Institutional Policy Studies, and Defence and Security Studies. The knowledge you will gain while on JCSP will prepare you for command and/or staff appointments in a contemporary environment across the continuum of operations in national and international settings. I encourage you to take full advantage of the multiple learning opportunities presented to you during this very important year in your military career.<sup>51</sup>

In turn, the message to NSP students consists of the following:

The National Security Programme (NSP) is designed to prepare selected military, public service, international, and private sector leaders for future strategic responsibilities within a complex and ambiguous global security environment. The 10-month residential programme is intended for the following participants: Canadian Armed Forces (CAF) Colonels and Naval Captains; officers of similar rank from allied nations; and civilian executives from within the Department of National Defence (DND), other government departments, public security agencies, non-governmental organizations, and academic institutions. To implement Canada's defence strategy, the CAF is required to work in partnership with the public service personnel of the DND. This integrated Defence team serves as a core element of a whole-of-government approach to meeting security requirements, both domestically and internationally. The CAF uses the NSP to

<sup>50</sup> Ghislain Letourneau, *To Train as We Fight*, Canadian Joint Operations Command, Ottawa, 2019, 2.

<sup>51</sup> Canadian Forces College, "Syllabus Joint Command Staff Program Introduction by Rear-Admiral L. Cassivi, Commander Canadian Defence Academy," (Joint Command Staff Program Syllabus, 2019), i.

fulfil its commitment to ensure that senior military and public service leaders are prepared to shape Government of Canada strategic responses in Canada's national security interests.<sup>52</sup>

The respective descriptions of JCSP and NSP indicate the value of these programmes in the development of intellectual readiness for the modern operational environment. Again, JCSP and NSP are reserved for only a small number of members each year.

The *To Train as We Fight* study surveyed 65 deployed senior leaders, from most of the CAF's current expeditionary missions. It was considered that JCSP and NSP were adequate to intellectually prepare for operations. Interestingly, only 33% of interviewees were JCSP qualified.<sup>53</sup>

In the context of this paper, an interesting observation is that the only people surveyed were 'senior leaders' (rank of Major and above). This indicates an inherent bias regarding graduate level education. Regardless of actual academic experience, it is senior leaders who are called upon to provide feedback on an issue. The feedback from the junior staff supporting these leaders in their planning orientations would likely have been of interest.

### **Integration of Lessons Learned in the CAF: The Perpetuity of 'ROTO 0'**

For the CAF, a disconnect exists between the PME and PD system and lessons learned on the operational side. Horn and Stouffer discuss the challenges of organizational learning and describe the factors hindering progress in this regard. The

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<sup>52</sup> Canadian Forces College, "Syllabus National Security Program Introduction by Rear-Admiral L. Cassivi, Commander Canadian Defence Academy," (National Security Studies Syllabus, 2019), *i*.

<sup>53</sup> Ghislain Letourneau, *To Train as We Fight*, Canadian Joint Operations Command, Ottawa, 2019, 16.



Department of National Defence (DND) and the CAF have established strategic guidance, lessons learned directives and processes, and a knowledge management system to facilitate organizational learning. Limited resources, inadequate knowledge management tools, apathy from internal stakeholders are listed as barriers to allow the CAF to become a true learning organization.<sup>54</sup>

An important observation brought forward in Horn and Stouffer's handbook is that lessons learned processes are rarely used outside of operations. The DND/CF Organizational Learning Strategy states:

Although many organizational learning initiatives and programs are in place, many leaders are not aware of the opportunities that are offered. As a result, many of the programs are not being used to the extent that they could be. Overall, organizational learning remains a poorly understood concept throughout much of DND/CF.<sup>55</sup>

The acknowledgment of the institution's shortcomings regarding knowledge management is a recurring theme in Canadian military education research. Although this observation has been highlighted many times over in the past, as recently as 2019 in *To Train as We Fight*, there is no end in sight for the perpetual cycle of 'ROTO 0'. Due to several resource-related factors and persistent fragmentation within the CAF, the initiatives seldom manage to cross the conceptual phase into operationalization.

Concretely, a formal linkage between organizations such as CJOC and PME organizations under CDA should be established and post-operational surveys, such as the

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<sup>54</sup> Bernd Horn and Jeff Stouffer, *Educating the Leader and Leading the Educated: The Defence Learning, Education and Training Handbook*, (Winnipeg: Canadian Defence Academy Press, 2012), 195.

<sup>55</sup> Department of National Defence, "Department of National Defence & Canadian Forces Organizational Learning Strategy", Knowledge Management (DDSM) - Organizational Learning.

ones conducted for *To Train as we Fight*, should be conducted systematically and fed back into CDA to improve PME, and ultimately, intellectual readiness.

### **‘Waiting for Godot’<sup>56</sup>: the CAF Overreliance on Doctrine as a Driver for Institutional Change**

Education is invaluable, in the sense that it is extremely challenging to measure the benefits of the outcome of direct investment into human capital, for which the effects, intangible in nature, can span a generation. Although just as critical for the future relevance of the Forces as the purchase of any platform, investment in human capital does not create jobs to the scale of a procurement project, nor does it offer clear and measurable results. As LGen Rouleau, points out: “We will have to re-examine our capital investment approach to preference human and intellectual capital over the physical.”<sup>57</sup>

The capstone documents mentioned in *To Train as We Fight* call for the update of doctrine and CAF military training institutions’ foundational documents in order to address gaps in perception of intellectual preparedness for deploying senior officers.<sup>58</sup> This paper argues that, although the dynamic update of doctrine would be ideal in order to ensure standardization and to foster more universal access to military education, the advances in military education in the CAF are subjugated by operational tempo,

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<sup>56</sup> “Waiting for Godot is a play by Samuel Beckett, in which two characters, Vladimir (Didi) and Estragon (Gogo), wait for the arrival of someone named Godot who never arrives, and while waiting they engage in a variety of discussions and encounter three other characters.” Dave Itzkoff, “The Only Certainty Is That He Won’t Show Up,” *The New York Times*, 12 November, 2013.

<sup>57</sup> M. Rouleau, Letter to staff - How We Fight, Canadian Forces Joint Operations Command, Ottawa, 2017, para. 25.

<sup>58</sup> Ghislain Letourneau, *To Train as We Fight*, Canadian Joint Operations Command, Ottawa, 2019, 2.

prioritization dictated by the political sphere and the resulting scarcity of resources available to make necessary changes. As it is the case for operational planning, necessity drives the change in approach and practitioners adapt to context dynamically.<sup>59</sup> Given the critical need for CAF to adapt to the evolving operational context, applying a similar flexibility to its approach to PME and PD would be beneficial.

### **PART THREE: ‘ANALYSIS PARALYSIS’ NO MORE – APPROACHES AND RESOURCES AVAILABLE TO IMPROVE INTELLECTUAL READINESS**

The issues of resource allocation and best practices to improve PME will be a source of tension and debate within the CAF for the foreseeable future. In the meantime, some teaching methods and resources are available to elevate the Force’s intellectual readiness in the short term and can be leveraged by organizations who commit to making a priority of investing in human capital.

#### **Heutagogy: A Teaching Approach Rooted in Self-Reflection to Improve Critical Thinking**

In *Unlearning “Stranger Danger”: Developing Cultural Competence in Canadian Military Professionals Through Collective Learning and Self-Reflection*, Brown and Okros advocate for a heutagogic approach to teaching to foster cultural competence in the military.<sup>60</sup> This paper concurs with Brown and Okros in that

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<sup>59</sup> M. Rouleau, Letter to staff - How We Fight, Canadian Forces Joint Operations Command, Ottawa, 2017, para. 18.

<sup>60</sup> Vanessa Brown and Alan Okros, (in press), “Unlearning ‘Stranger Danger’: Developing cultural competence in Canadian military professionals through collective learning and self-reflection,” in *Teaching Culture at Military Academies*, Enstad, K. & Holmes-Eber, P. Eds. Springer International Publishing.

heutagogy can serve the broader aim of developing critical thinking for military professionals in the modern world: "...heutagogic learning approach is argued to cultivate critical thinking capabilities by enabling learners to determine for themselves how and what they learn in relation to twenty-first century problems."<sup>61</sup> Furthermore, an approach based on critical self-reflection would contribute to the mitigation of the powerful effects of indoctrination and fragmentation as a barrier to critical thinking.

An approach founded on self-directed learning appears to be a credible tool to break through the insularity of a 'Huntingtonian'<sup>62</sup> view of the military *vis-à-vis* the rest of society. Instilling self-reflection requires openness towards one's environment and accountability towards one's own intellectual development as a military professional rather than encouraging the replication of thoughts and worldviews prescribed by the institution.

The conditions for a heutagogic approach include critical self-reflection on the part of educators and students alike, which disrupts personal and institutional biases. Brown and Okros mention that this method focuses "on collaboration, critical self-reflection, and student-driven learning".<sup>63</sup> The orientation towards collaboration combined with the development of awareness of tacit biases serve as an enabler for

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<sup>61</sup> Vanessa Brown and Alan Okros, (in press), "Unlearning 'Stranger Danger': Developing cultural competence in Canadian military professionals through collective learning and self-reflection," in *Teaching Culture at Military Academies*, Enstad, K. & Holmes-Eber, P. Eds. Springer International Publishing, 9.

<sup>62</sup> S.P. Huntington, *The soldier and the state: The theory and politics of civil-military relations*. (Cambridge, MA: Harvard University Press, 1957), 83.

<sup>63</sup> Vanessa Brown and Alan Okros, (in press), "Unlearning 'Stranger Danger': Developing cultural competence in Canadian military professionals through collective learning and self-reflection," in *Teaching Culture at Military Academies*, Enstad, K. & Holmes-Eber, P. Eds. Springer International Publishing, 9.

intellectual readiness. It allows an increase capacity to adapt to a dynamic, complex and ambiguous operational environment and encourages openness to innovative tools and approaches to problem solving.

### **Systems and Design thinking**

Despite its linear approach, OPP remains a reliable strategic and operational planning tool. OPP provides planners with a common vernacular, thus facilitating the development of a common understanding. In the absence of a tool more adapted to contemporary operations, systems and design thinking have risen in popularity. For instance, JCSP and NSP have begun introducing candidates to this style of approach.

Systems thinking replaces reductionism with expansionism, and analysis with synthesis. Organizational theorist Russell Ackoff, states: “analysis is useful for revealing how a system works, but synthesis reveals why a system works the way it does.”<sup>64</sup> On the subject of design, professor of design studies Nigel Cross highlights that design thinking practitioners are able to “produce novel unexpected solutions, tolerate uncertainty, work with incomplete information, apply imagination and forethought to practical problems and use drawings and other modeling media as means of problem solving.”<sup>65</sup>

These approaches provide space for expanding the horizon of decision makers. They also appear better adapted to the requirements of the modern operational environment. Unfortunately, only a small proportion of CAF members are formally

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<sup>64</sup> John Pourdehnad, Erica R. Wexler and Dennis V. Wilson, “Integrating Systems Thinking And Design Thinking,” *The Systems Thinker* (blog), 2018, <https://thesystemsthinker.com/integrating-systems-thinking-and-design-thinking/>.

<sup>65</sup> *Ibid.*

exposed to systems and design thinking. Access to education that enables decision makers and planners at all levels to innovate should be institutionalized.<sup>66</sup>

### **Canadian Forces College's Information Resource Center: A Tool for the Democratization of Knowledge**

The CFC's Information Resource Center (IRC) hosts the CAF Virtual Library. The Virtual Library, could serve as a platform to 'democratize knowledge' in the CAF. Launched in 2004, the CAF Virtual Library provides around-the-clock access to full-text digital content, including electronic journals, electronic books, and reports. Its mandate is to support CAF education, training, research and operations.<sup>67</sup> The CAF Virtual Library is the largest virtual library in the federal sector and is remotely accessible through Defence and academic networks.. As IRC Director Information Resource Center and Manager of the CAF Virtual Library Cathy Murphy, points out:

The Virtual Library resources form the core of social science and general technology research databases offered by individual DND libraries, including the Royal Military College of Canada (RMCC) Library, the Canadian Army Library and the National Defence Headquarters (NDHQ) Library.

The CFC business plan includes baseline funding for research databases for the library but other DND and CAF organization could customize the content of the Virtual Library by becoming contributors. At this time, the main contributors to the library are Canadian

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<sup>66</sup> Ben Zweibelson, Aaron P. Jackson and Simon Bernard, "Teachers, Leave Them Kids Alone: Debating Two Approaches for Design Education in Military Organizations," *Royal Military College Saint-Jean - The Blue Knight Review*, 2018, 2, <https://www.cmrsj-rmcsj.forces.gc.ca/cb-bk/art-art/2018/art-art-2018-4-eng.asp>.

<sup>67</sup> Cathy Murphy, "Solo Flight on Professional Military Education - request for reference" (email, Canadian Forces College, Toronto, ON, 14 April 2020), with permission.

Forces Intelligence Command, CFC in addition to, Defence and Research Development Canada, the Royal Canadian Air Force, the Directorate of History and Heritage, and the Canadian Forces Health Group. Contributors fund specific resources that meet their operational requirements.<sup>68</sup>

CJOC does not currently provide funding to the Virtual Library, as it hosts information such as joint doctrine publications on CAF internal sites.<sup>69</sup> Yet, the participation of CJOC and other force employers in shaping the content of the library could address some of the issues identified in *To Train as We Fight*. The Virtual Library could be especially useful to address concerns regarding access to higher education.<sup>70</sup>

### **Canadian Forces College's Center for National Security Studies and the Dallaire Centre of Excellence for Peace and Security: Research Horsepower**

An additional resource currently available to support intellectual readiness is the Centre for National Security Studies (CNSS). The CNSS offers means to conduct analysis of issues related to national security. It does so through the study and understanding of the Canadian national security apparatus.<sup>71</sup>

In his briefing note to Commander CDA, Dr. Alan Okros points to the requirement for senior leaders and their key staff to “engage in complex analyses, planning and programme management in order to implement SSE initiatives”.<sup>72</sup> He

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<sup>68</sup> Cathy Murphy, “Solo Flight on Professional Military Education - request for reference” (email, Canadian Forces College, Toronto, ON, 14 April 2020), with permission.

<sup>69</sup> *Ibid.*

<sup>70</sup> Ghislain Letourneau, *To Train as We Fight*, Canadian Joint Operations Command, Ottawa, 2019, 59.

<sup>71</sup> Alan Okros, Briefing Note to Commander Canadian Defence Academy - Establishment Changes: Centre for National Security Studies, Canadian Forces College, 12 October 2017.

<sup>72</sup> *Ibid.*, para 4.

identifies critical gaps in competencies and knowledge within CAF leadership and staff to achieve the Defence policy results. The following frames the focus of CNSS' efforts:

Thus, the focus of the CNSS initiative is to build on existing areas of professional and academic knowledge at CFC and, in support of SSE initiative 73 and broader defence diplomacy, to draw on established networks with external academics, think tanks and research institutes at allied PME centres to create the capacity to harness this expertise for targeted knowledge generation and knowledge dissemination activities...<sup>73</sup>

In preparation for deployment, CNSS could be a complementary resource to pre-deployment training. In *To Train as We Fight*, the training offered, including by the Peace Support Training Center (PSTC) in Kingston, Ontario is criticized as being insufficient to meet operational needs:

Individual Pre-Deployment Training (IPT), be it provided at home unit, but more so that provided at PSTC, is judged to lack mission/theatre-specific contents, especially with regards cultural awareness, is (was) not provided to officers that are posted to missions, repeats and emphasizes too much on Individual Battle Task Standards (IBTS) training often already completed, and its overall ownership is not well defined. CJOC should consider taking full ownership of such, for each mission under its purview, addressing the recommendations contained in this report.<sup>74</sup>

Options exist to address the gaps in training identified by *Train as We Fight*.

One option could be for CJOC and force generators to connect with the research team within the CNSS to draw on expertise to address the gaps in pre-deployment training.

A second option could be to use the Dallaire Centre of Excellence for Peace and Security (DCOE-PS) research staff for academic mentorship. At full operational

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<sup>73</sup> Alan Okros, Briefing Note to Commander Canadian Defence Academy - Establishment Changes: Centre for National Security Studies, Canadian Forces College, 12 October 2017, para 4.

<sup>74</sup> Ghislain Letourneau, *To Train as We Fight*, Canadian Joint Operations Command, Ottawa, 2019, 2.



capability, DCOE-PS is comprised of seventeen personnel, military and civilian, divided in three functional areas and located in three locations. The Executive Director and the staff responsible for key engagement are located in Ottawa and staff dedicated to research is co-located at CDA Headquarters in Kingston and CFC in Toronto. Some of the responsibilities of the DCOE-PS include support to organizations responsible for joint and service concepts, doctrine, training, and lessons learned. The center provides support through the identification of lessons learned and best practices, the development of concepts and the conduct of analysis of doctrinal gaps against CAF operational requirements.<sup>75</sup> Okros describes the center's research capability in these terms:

The Deputy Director Research will conduct research and analysis of current, emerging, and potential security policy areas; academic and professional literatures; perspectives of the national security practitioner community; and civil society discourse to identify implications for CAF operational requirements and professional development.<sup>76</sup>

This research and mentorship capacity can provide additional expert insight on complex issues and wicked problems for commanders and staff while deployed.<sup>77</sup>

## CONCLUSION

The review of the Canadian PME system indicates that it is not optimized for operations in the modern operational environment. At this time, the PME system is not able to ensure the intellectual readiness of operational elements at the scale required for

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<sup>75</sup> Alan Okros, "Strengthening the Canadian Armed Forces Capacity to Address Child Soldiers," *Canadian Military Journal*, (Vol. 20, No.1, 2019), 65, <http://www.journal.forces.gc.ca/Vol20/No1/page65-eng.asp>.

<sup>76</sup> *Ibid.*

<sup>77</sup> Alan Okros, "Personal communication – information request on Center for National Security Studies" (email, Canadian Forces College, Toronto, ON, 14 April 2020), with permission.

the contemporary battlespace. Fragmentation and a lack of investment in human capital are factors that have been identified as barriers to the optimization of CAF intellectual readiness. Existing resources have been identified as opportunities to achieve short-term improvements to PME.

Horn and Stouffer's 2012 *Educating The Leader and Leading the Educated*<sup>78</sup> was a comprehensive study of the matter of military education and professional development. Nearly a decade ago, the Horn and Stouffer handbook offered concrete solutions, highlighted gaps and requirements discussed in this paper. The conclusions offered in the handbook re-emerged in *To Train as We Fight*, the CJOC-commissioned study in 2019.

Unless there is a serious commitment to investing in its human capital and implementing concrete measures to improve CAF personnel's education in all levels of leadership, expectations are that CAF leaders will continue to rely mostly on outdated reflexes to do business, thus perpetuating the vicious cycle of 'ROTO 0'. If apathy persists, several other papers like this one will be written in the future, contemplating the problem that has eluded the institution since the early 20<sup>th</sup> century, witnessing the erosion of the Canadian military's relevance in a world redefined.

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<sup>78</sup> Bernd Horn and Jeff Stouffer, *Educating the Leader and Leading the Educated: The Defence Learning, Education and Training Handbook*, (Winnipeg: Canadian Defence Academy Press, 2012).

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