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A Meta-Analysis of CFC Papers From 1998-2021

Major Jessica Z. Ross

JCSP 48

Exercise Solo Flight

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JCSP AS A THINK TANK? A META-ANALYSIS OF CFC PAPERS FROM 1998-2021 TO ASSESS CANADA'S PROFESSIONAL MILITARY EDUCATION

I expect all commanders to execute leader development programs, including reading, writing and publishing to contribute to our body of professional knowledge.

— Lieutenant General Wayne D. Eyre, Commander Canadian Army
Command Philosophy 2nd Edition, 8 February 2021

INTRODUCTION

In his opening address to Joint Command and Staff Program (JCSP) 48, the Commandant stated that JCSP is sometimes seen as a think tank for senior Canadian Armed Forces (CAF) leaders.¹ This idea leads to several interesting questions about both the purpose and the potential of this course. Recent world events—a global pandemic and Russia's war in Ukraine, all under the shadow of both culture and climate change—have made it clear that the CAF must be able to adapt to an ever more complex world.² These events have also led the Canadian public to start paying more attention to Canada's role in the world and the CAF's capabilities.³ This begs the question of whether JCSP—and ultimately the entire Canadian Forces College (CFC)—has the potential to meaningfully contribute to the conversations about contemporary defence and security matters that are underway today. It has long been noted that the media and the public generally have a limited understanding of defence matters;⁴ could CFC have a role in bridging that gap in understanding?

¹ BGen J. Errington, address to JCSP 19 August 2021, with permission.

² Richard Raycraft, "Canada's top soldier says the military is on the 'cusp' of rapid change," CBC, accessed 27 April 2022 <https://www.cbc.ca/news/politics/wayne-eyre-military-challenges-future-1.6419663>

³ Evan Dyer, "How the war in Ukraine showed that Canada is ill-equipped to fight a modern army," CBC, accessed 27 April 2022, <https://www.cbc.ca/news/politics/ukraine-russia-shoulder-mounted-missile-tank-javelin-stinger-1.6389525>

⁴ Steven M. Saideman, "Canadian Civil-Military Relations in Comparative Perspective: It Could Be Worse?" in *Canadian Defence Policy in Theory and Practice*, ed Juneau, Lagasse, Vucetic, p.128-129.

Considering this broader context, the purpose of the courses offered by CFC must be to prepare CAF leaders to operate in and lead through complexity. What tools are provided to prepare this next generation of CAF leaders—and are they the right tools? How can the knowledge that CFC students generate be shared, and is it even worth sharing? Is CFC already a think tank, just because its student papers are can be found online? What does being a think tank truly mean? Given the professional experience and intellectual effort of the CFC student body, there is certainly a great deal of knowledge held within CFC's walls. This paper argues that CFC should embrace its unique position and potential as a think tank and seek to become an important voice in the broader Canadian defence and security community.

This paper will begin by developing a basic understanding of think tanks and the Canadian defence think tank ecosystem. An overview of the history of PME within Canada, as well as the aim of JCSP (the largest course offered at CFC)⁵, will follow. The paper will then present the thinking tools and teaching methodologies that are seen throughout the program. These topics will support an analysis of CFC's output over the past two decades and its potential as a think tank, through a review of some of the topics and themes found in the 3,600 student papers in the CFC database. The concept of whether CFC students are asking the right questions for the future of the CAF, and if they are the right engine to fuel a defence think tank will be addressed.

⁵ CFC sees approximately 365 students each year; there are currently 128 on JCSP Residential, 204 on JCSP Distance Learning (split between two serials), and 33 on the National Security Program (NSP). As such JCSP Residency is studied in greatest depth.

BACKGROUND

Think Tanks

As outlined in public policy expert James McGann's latest annual "Global Go To Think Tank Index Report," think tanks may be defined as:

...public policy research analysis and engagement organizations that generate policy-oriented research, analysis and advice on domestic and international issues, thereby enabling policymakers and the public to make informed decisions about public policy.⁶

This definition focuses on the "research, analysis and advice," suggesting that policymakers, who could be seen as senior level decision-makers and their staffs, may not always have a depth and breadth of expertise in all areas for which they may be responsible.⁷ Think tanks might also serve to bring alternative perspectives and interests into conversations. Ultimately, think tanks aim to produce written work that may be shared, in order to improve the quality of analysis of a given problem and best enable well-informed decisions.⁸ McGann goes on to elaborate that

...these institutions often act as a bridge between the academic and policymaking communities and between states and civil society, serving in the public interest as an independent voice that translates applied and basic research into a language that is understandable, reliable and accessible for policymakers and the public.⁹

The idea of a think tank as a bridge is useful in this paper, considering how few and far between the pockets of expertise in defence and military matters are.¹⁰ Relative to the

⁶ James G. McGann, 2020 Global Go To Think Tank Index Report, Think Tanks and Civil Societies Program (TTCSP), University of Pennsylvania, 13. https://repository.upenn.edu/think_tanks/18/

⁷ Donald E. Abelson, *Northern Lights: Exploring Canada's Think Tank Landscape*, Montreal ; Kingston McGill-Queen's University Press, 2016, 129.

⁸ Abelson, "Northern Lights...", 16, 33.

⁹ McGann, "Global Go To...", 13.

¹⁰ Saideman, "Canadian Civil-Military..." 128-129.

media and the general public, there is a healthy cohort of knowledgeable academics in the field of defence and security.¹¹ The vibrancy of this academic cohort has been attributed in part to the longstanding (but now defunct) Security and Defence Forum which brought together academics, practitioners, and policy makers for several years.¹² This Forum's funding ended in the early 2010s, which led to a decline in the interactions between stakeholders, however, recent initiatives such as the Defence Engagement Program (DEP) and Innovation for Defence Excellence and Security (IDEaS) program have sought to reinvigorate this niche field.¹³ The degree to which this renaissance involves military practitioners remains to be seen.

Canadian Defence and Security Think Tank Ecosystem

Many of these academics belong to or contribute to Canadian think tanks. Although much more common in the United States, Canada has a “diverse and burgeoning think tank population.”¹⁴ Unfortunately, only a relatively small proportion of these organizations are primarily focused on defence and security.¹⁵ Of the 85 Canadian think tanks identified across all fields in the most recent Think Tank Index Report, only three were ranked among the world's Top 110 Defense and National Security Think Tanks¹⁶. This is not to say that there are only three; several other Canadian think tanks that regularly contribute defence-related articles appeared elsewhere in the rankings. There are a number of other well-regarded organizations that frequently participate in

¹¹ Saideman, “Canadian Civil-Military...” 129.

¹² Thomas Juneau et.al., “Introduction,” in *Canadian Defence Policy in Theory and Practice*, ed Juneau, Lagasse, Vucetic 3.

¹³ Juneau 3-4.

¹⁴ Abelson, “Northern Lights...,” 13.

¹⁵ McGann, “Global Go To...,” 13.

¹⁶ These three are marked by an asterisk in Table 1.

Table 1 — List of Canadian think tanks that produce defence and security articles

Organization (<i>alphabetically</i>)	Comments
Canadian Defence and Security Network (CDSN) (<i>Carleton University</i>)	
Canadian Global Affairs Institute (CGAI)	#6 - Top Think Tanks in Mexico and Canada
Centre for Defence and Security Studies (CDSS) (<i>University of Manitoba</i>)	
Centre for International Policy Studies (<i>University of Ottawa</i>)	#22 - Top Think Tanks in Mexico and Canada
*Centre for International and Defence Policy (CIDP) (<i>Queen's University</i>)	#28 - Top Think Tanks in Mexico and Canada #57 - Top Defense and National Security Think Tanks
*Centre for International Governance Innovation (CIGI)	#30 - Top Think Tanks Worldwide #2 - Top Think Tanks in Mexico and Canada #81 - Top Defense and National Security Think Tanks
Centre for Military, Security and Strategic Studies (CMSS) (<i>University of Calgary</i>)	
Conference of the Defence Associations (CDA) Institute	
*Fraser Institute ¹⁷	#14 - Top Think Tanks Worldwide #71 - Top Defense and National Security Think Tanks
Institute for Research on Public Policy (IRPP)	#132 - Top (Non-US) Think Tanks Worldwide #4 - Top Think Tanks in Mexico and Canada
Macdonald-Laurier Institute (MLI)	#9 - Top Think Tanks in Mexico and Canada
Rideau Institute	
Royal Canadian Military Institute (RCMI)	
Royal United Services Institute (RUSI) - Nova Scotia chapter	

Source: compiled by the author from McGann, Juneau, and Saideman

¹⁷ The Fraser Institute appears to have been included in the Defense ranking in error; it has published only one defence related article on its site since 2008.

Note: this list is not exhaustive; there may well be other groups that the author did not encounter, although it should be noted that part of a think tank's value are its reach and its reputation.

defence and security conversations, even if they do not have the same international reputation and reach as the ones that appeared in McGann's report. A listing all of these organizations, each of which effectively meets the definition of a think tank, has been consolidated in Table 1. There is one absence from Table 1 that must be discussed. CFC's Centre for National Security Studies (CNSS) was established in 2010, with the aim of "fostering the study... of Canadian national security" and "improve[ing] the resource network for national security studies."¹⁸ CNSS was active between 2010 and 2020, producing a number of papers, and hosting several events. It has been without a director for the past few years, and does not appear to be currently active. It is one possible option, however, to use CNSS as a scaffolding on which to further build the idea of CFC as a think tank, without needing to start from scratch. So is there still room for CFC as a think tank, amongst all the current players?

In some ways, CFC may already be partially filling the role of a think tank. Almost all CFC student papers going back to 1998 are available online, and there are an estimated 22,500 annual downloads from the database's 3,600 papers.¹⁹ Unsurprisingly, "primary consumers of the papers are the US and Canadian militaries. However, the interest in the papers is global with significant access from China and Russia."²⁰ Of note further is that users also include "academics, parliamentarians and the public."²¹ By

¹⁸ Centre for National Security Studies, accessed 27 April 2022, <https://www.cfc.forces.gc.ca/237/394-eng.html>.

¹⁹ Cathy Murphy, "Briefing Note for EMPB, CFC Research Papers: Retention and Outreach," Canadian Forces College, 10 Sep 19, 1.

²⁰ Murphy, Briefing Note..., 1.

²¹ Murphy, Briefing Note..., 1.

enabling such access, CFC may indeed be making up for a lack of military practitioners in Canada's defence think tank landscape, even if only 'passively.' The 'bridge' that a CFC think tank might thus build could be both external, to engage academics and policy makers, as well as internal, to contribute more deliberately to the CAF's professional development networks. The repository of papers will be examined in greater detail in a later section.

It is important to consider, however, not just the quantity but the *quality* of the work that is produced by CFC students. To determine whether CFC inculcates the intellectual rigour expected of a think tank, it is important to understand the purpose of the courses offered by CFC, with a focus on JCSP Residency.

DISCUSSION

Purpose and History of PME in Canada

As the title of Col (ret'd) Wakelam's article "Dealing With Complexity and Ambiguity: Learning to Solve Problems Which Defy Solution" on the history and evolution of PME in Canada suggests, PME has long concerned itself with developing the ability of military leaders to operate successfully in difficult environments. Wakelam walks through the different incarnations and motivations of Canadian PME between 1939 and 2010, and ultimately suggests that

...regardless of the type or intensity of conflict, broad education which focuses on developing an individual's intellectual capacity to deal with complex ambiguous situations is the cornerstone of effective performance.²²

²² Randall Wakelam, "Dealing with Complexity and Ambiguity: Learning to Solve Problems Which Defy Solution" *Strathrobyn Papers*, No. 4, (2010), 1.

Prior to World War II, Canada relied on British military schools to conduct advanced training for its staff. By the end of 1943, however, both the Canadian Army and the Royal Canadian Air Force had respectively established their own staff courses.²³ Both of these courses emphasized the importance of critical thinking and communication skills, and effectively “prepared senior officers for a wide gamut of complex and ambiguous challenges” in the two decades to follow.²⁴ The decision in the mid-1960s to unify the three services helped spur a new review of PME requirements.²⁵ Led by Major-General Rowley, the Officer Development Board sought to identify the qualities needed in officers at various points throughout their career, and develop guidelines for an updated officer development system. These qualities are shown graphically in Figure 1 below; of note, intellectual and executive ability were deemed to be of importance even to very junior officers, ever increasing at each rank. From this it may be extrapolated that leaders at all levels should actively seek to continuously develop their subordinates, both formally and informally; we will return to this idea in the final section of this discussion.

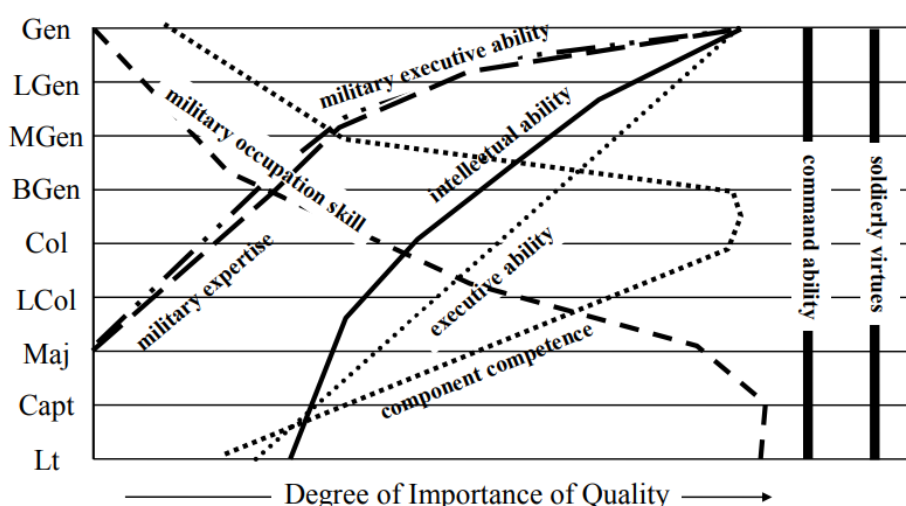


Figure 1-- Rowley's Professional Qualities for Effective Officers

²³ Wakelam, “Dealing with Complexity...” 2.

²⁴ Wakelam, “Dealing with Complexity...” 2, 4.

²⁵ Wakelam, “Dealing with Complexity...” 4.

Source: Wakelam, “Dealing with Complexity...” 12.

The recommendations of the 1969 Officer Development Board Report were not ultimately implemented at the time. The degree to which this lack of evolution may have contributed to the leadership crises faced by the CAF throughout the 1990s²⁶ can only be speculated. Whatever the root cause may have been, the cure to “fix the profession” was deemed to include “reforms to officer professional education.”²⁷ By 1997, the Advanced Military Studies Course (AMSC) and National Security Studies Course (NSSC), precursors to today’s National Security Program (NSP), had been approved, filling a gap that had existed in the education of colonels and naval captains.²⁸ CFC’s primary method of delivery was also re-visited at this time, as it was noted of the Command and Staff Course (later to become JCSP) that “the learning environment was largely passive in nature – it was possible to pass the programme without much original thinking.”²⁹ This weakness was overcome by adopting a more ‘active’ lecture-discussion method. This method opens with an academic lecture, after which students have a discussion within their respective syndicates, before returning to a Q&A session with the lecturer. By enabling students to interact with the material in three different ways, this method encourages students’ engagement with and challenging of the material presented.³⁰ This method is still in use today on JCSP.

As Wakelam summarizes of the recommendations of the “Officership 2020” policy statements that were published in the early 2000s,

²⁶ Wakelam, “Dealing with Complexity...” 8-9.

²⁷ Wakelam, “Dealing with Complexity...” 9.

²⁸ Wakelam, “Dealing with Complexity...” 9.

²⁹ Wakelam, “Dealing with Complexity...” 12.

³⁰ Wakelam, “Dealing with Complexity...” 12-13.

...the message to the profession was clear: change and ambiguity were constants, and intellectually acuity and flexibility were essential for the health of the profession and, ultimately, the security of the nation.

This message still resonates today, as the words ‘unprecedented times’ have been used over the past two years to describe the ‘change and ambiguity’ encountered throughout a global pandemic, CAF leadership scandals, an occupation of the National Capital by protesters, and the outbreak of war in Ukraine. It may thus be inferred that developing the intellectual capacity of CFC’s students has long been and must continue to be at the heart of the programs that are delivered. Let us now look at how this translates to today’s curriculum, with a focus on JCSP Residential.

JCSP syllabus and specific learning objectives

JCSP Residential, a 10-month program for approximately 130 students including international officers, is the largest course offered by CFC. Students are majors and lieutenant-colonels (Developmental Period (DP) 3), who have been selected to attend the course in order to prepare them for more senior and complex command and staff positions.³¹ As explained in the introduction to the JCSP syllabus, the course

“is intended to produce graduates who think critically and who have the agility of mind and strong communications skills necessary to solve institutional as well as operational warfighting problems.”³²

Communication skills, research skills, critical and creative thinking, and problem solving, are explicitly identified as important skills students to develop over the course of the program.³³ These skills—critical thinking and communications in particular—have long been stated as goals of formal PME in Canada, as far back as 1942.³⁴ The topics through

³¹ Canadian Forces College, “Syllabus Joint Command and Staff Program (JCSP) Residential,” 2021, 1-1/6.

³² CFC, “Syllabus...,” i.

³³ CFC, “Syllabus...,” 2-1/10.

³⁴ Wakelam, “Dealing with Complexity...” 2.

which these skills are developed includes several common core courses, elective courses, and specialized stream courses; the specific courses offered to JCSP 48 are outlined below in Table 2 below.

Table 2 – Courses offered on JCSP 48 Residential

Common to All	Complementary Elective (pick one course)	Stream (pick one stream)
101: Learning Foundations*	Directed Research Project (DRP)	Advanced Joint Warfighting Studies (AJWS):
520: Planning at the Operational Level	501: Wargaming	548: Advanced Joint Warfighting
545: Component Capabilities	519: Military Law in Comparative Perspective	549: Advanced Topics in Campaign Design*
555: Leadership	521: Leading Operational Art and Design	Institutional Policy Studies (IPS):
556: Command	526: Peace and Stability Operations	554: Advanced Topics in Institutional Policy Development*
569: International Security and Canadian Foreign Policy	529: Philosophie Politique: Dans l'Oeil de l'Adversaire	557: Institutional Policy Analysis
Design Tutorial and Capstone (organized by stream)	535: Politique, culture, et conflits internationaux	Defence and Security Studies (DSS):
* <i>Not an assessed course; intended to prepare students for graduate-level studies</i>	538: Genocide, Conflict and Justice	567: Global Power and Institutions
	551: Modern Joint Air Campaigns	568: Advanced Topics in International Security Studies*
	585: Gender Perspectives in Defence and Security	* <i>Students completing a DRP do not need to take these courses</i>

Source: Compiled by the author from the JCSP Syllabus, 3-3/23 to 3-6/23

The topics covered in each of these courses is quite broad, and the curriculum must account for a wide variety of academic backgrounds and professional experiences. For example, a student who has not previously encountered international relations theory might come away from the International Security and Canadian Foreign Policy course with ‘enough knowledge to be dangerous,’ although hopefully that student would also have their eyes opened to newly identified ‘known unknowns’ in the process. Students

are able to select areas of particular interest to study in more detail, both through their choice of complementary elective as well as the topics of their major papers. With the possible exception of those completing a 20,000 word DRP, however, there is limited scope for students to truly develop very deep expertise in any of these knowledge areas. What is perhaps more important is the mindset to which students approach the material presented, and how they might evolve how they think about problems they encounter. So what are the tools provided to students to enable them to think better in an ever more complex world?

‘Thinking’ on JCSP

Organizational psychologist Adam Grant posits that

When people reflect on what it takes to be mentally fit, the first idea that comes to mind is usually intelligence. The smarter you are, the more complex the problems you can solve—and the faster you can solve them. Intelligence is traditionally viewed as the ability to think and learn. Yet in a turbulent world, there’s another set of cognitive skills that might matter more: the ability to rethink and unlearn.³⁵

JCSP allocates time before the start of formal academic lectures to discuss the topics of thinking and learning through the “101: Learning Foundations” course. This approach is important because many JCSP candidates may not have been in an academic environment since completing their undergraduate studies as many as 15 years prior. Dedicating 22 hours to presentations on learning styles, metacognition, critical thinking, research methods, and writing academic-style papers, this 101 course helps prime students to challenge both the concepts, as well as their own biases, as they approach course

³⁵ Adam Grant, *Think Again: The Power of Knowing What You Don’t Know*, Viking Press: New York, 2021, 2.

material.³⁶ By setting the stage in this way at the start of the course, students are open to the ‘rethinking and unlearning’ that are essential to problem solving today.

In addition to these early discussions on thinking, the concept of ‘design thinking’ is introduced on JCSP. Design thinking can be defined as “an approach to problem framing, not problem solving”³⁷ to be used when tackling complex or wicked problems. First introduced into the curriculum at CFC in 2013, design is intended to help students change their “way of thinking about a problem in order to be in a better position to address it.”³⁸ This ‘rethinking’ is an important step toward ensuring that the right problem is being solved. Einstein famously emphasized this point when he stated:

If I had an hour to solve a problem and my life depended on the solution, I would spend the first 55 minutes determining the proper question to ask, for once I know the proper question, I could solve the problem in less than five minutes.³⁹

Design is “intrinsically connected with generating solutions”⁴⁰ by ensuring that the right solution space is being explored; this is separate from the work of ‘solving the problem,’ or, in more familiar terms, planning. Design may complement operational planning, but it does not replace it.⁴¹ There is not one specific way to ‘do’ design, but “rather a collection of approaches and loosely connected ideas. Design is more of an art form rather than a

³⁶ Canadian Forces College, CF101 Learning Foundations Course Description, 2021.

³⁷ Philippe Beaulieu-Brassard and Paul Mitchell, “Challenge-Driven: Canadian Forces College’s Agnostic Approach to Design Thinking Education,” accessed 14 April 2022 <https://aodnetwork.ca/challenge-driven-canadian-forces-colleges-agnostic-approach-to-design-thinking-education/>

³⁸ Beaulieu-Brassard, “Challenge-Driven...”

³⁹ Provided during the design tutorial; exact wording above from GoodReads, accessed 3 May 2022, <https://www.goodreads.com/quotes/8040091-if-i-had-an-hour-to-solve-a-problem-and>

⁴⁰ Beaulieu-Brassard, “Challenge-Driven...”

⁴¹ Matthew Lauder, “Systemic Operational Design: Freeing Operational Planning from the Shackles of Linearity,” *Canadian Military Journal* 9, no. 4, 2009, 41, 46.

process: it cannot be ‘taught,’ but learners can be ‘coached’ through design problems...”⁴² This is exactly how design was explored on JCSP 48.

Studied in depth by up to 10 students who chose the complementary elective “Leading Operational Art and Design,” all students participated in a one-week intensive tutorial on design thinking.⁴³ This tutorial was intended to prepare students for the final capstone exercise, during which it is expected that the design thinking tools that were learned will be applied to the assigned problems.

Three design thinking approaches were presented—human-centric design, systemic design, and foresight—with the course divided into three groups, each focusing on one single approach in detail. The course as a whole was posed a problem at the start of the week. Experienced facilitators then coached students through how to apply their method-specific tools to this problem, with the course reconvening at the end of the week to share what had been learned. This method was effective in exposing students to new thinking models and providing an opportunity to test them.

There is ongoing debate about when the concept of design thinking should be introduced into PME. Students on JCSP are typically employed in senior-level staff and command—read, institutional—positions, meaning that there is limited opportunity for these ideas to percolate down to the tactical level where they might be passed on to junior officers and NCOs. This may be a missed opportunity to foster innovation and curiosity at the grassroots level, and enable it to grow over the course of a member’s career.

⁴² Paul T. Mitchell, “Stumbling into Design: Action Experiments in Professional Military Education at Canadian Forces College,” *Journal of Military and Strategic Studies*, Volume 17, Issue 14, (2017): 101.

⁴³ The Design Tutorial and Capstone project do not feature in the JCSP Syllabus.

Design thinking theorist Ben Zweibelson suggests design should be introduced sooner rather than later:

Why would this be of value for a military? Innovation is costly, and it remains a high-demand and low-availability cognitive commodity in organizations. Design thinking becomes for the military a useful process for fostering diversity of thought, creativity as well as critical self-reflection. When a military demands innovation from itself, it currently expects senior leaders to be “generalized” in that upon reaching the maturity and high level of experience and success that the top performers accomplish over decades of service, these general officers must now become organizational change agents and “out-of-the-box” thinkers. Yet the one thing that most of them share is the ability to conform better than their peers at every critical career advancement gate along the path; they are masters of convergence and efficiency.⁴⁴

This rationale should be of particular interest to the CAF as it grapples with culture change, recruiting, and retention challenges. This is because fostering a ‘design culture’ throughout the CAF may contribute to a more inclusive environment, where curiosity and new ideas are seen as valuable, not as threatening. As Zweibelson continues,

There is an increasingly popular argument that divergent thinkers, innovators and mavericks have been removed or driven away over the competitive process of military promotion and advancement, with only a minority remaining to command at high levels (Brooks, 2013; Kane, 2011). Paradoxically, it is at the strategic level that senior leaders are suddenly expected to not be the best in their peer group at convergence and conformity.⁴⁵

⁴⁴ 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, <https://www.cmrsj-rmcjsj.forces.gc.ca/cb-bk/art-art/2018/art-art-2018-4-eng.asp>

⁴⁵ Zweibelson, “Teachers, Leave Them Kids Alone...” 2018.

It could be argued that introducing design on JCSP is better late than never. Indeed, one student's MDS from JCSP 38 lamented the dearth of systems thinking in the curriculum;⁴⁶ 10 years on, there is marked progress.

JCSP students are provided a range of tools to reflect on the experience they have gained throughout their career, and to consider this experience in the broader context of the information taught throughout the program. For many students, however, it has likely been over 15 years since they were last in an academic environment, and they may have become accustomed to rote military training, as opposed to education. Not all students are receptive to or enthusiastic about a return to an academic environment.⁴⁷ As will be shown in the next section, the success of enticing a horse to drink the water it has been led to depends on how that water—new knowledge and thinking models—are presented.

Adult learning models

As identified earlier in this paper, 'passive' lectures do not stimulate critical or original thought. Classic teacher-directed pedagogy methods, in which "teachers assume responsibility for making decisions about what is learned, and how and when something will be learned..."⁴⁸ are not typically effective with adult learners. Adult learners must be intrinsically motivated to truly learn;⁴⁹ andragogy, or "the art and science of helping adults learn,"⁵⁰ is a more appropriate approach. Author Maria Connor elaborates further:

⁴⁶ Stuart W. Taylor, "Learning to understand conflict as a complex adaptive system in the contemporary operating environment: an examination of the JCSP 38 and the professional military education of the Canadian Forces' future senior leaders," MDS JCSP 38, Canadian Forces College, 2012, 7.

⁴⁷ Anecdotal evidence only; there is no data collected at the outset of JCSP to assess students' attitudes toward the course or what their personal goals for the course are.

⁴⁸ Stephen Pew, "Andragogy and Pedagogy as Foundational Theory for Student Motivation in Higher Education," *Student Motivation*, Volume 2, 2007, 17.

⁴⁹ Pew, "Andragogy and Pedagogy..."

⁵⁰ Maria Connor, "Introduction to Andragogy and Pedagogy," blog, last accessed 3 May 2022, <http://marciaconner.com/resources/andragogy-pedagogy/>.

In the andragogical model there are five assertions: 1) Letting learners know why something is important to learn, 2) showing learners how to direct themselves through information, 3) relating the topic to the learner's experiences. In addition, 4) people will not learn until they are ready and motivated to learn. 5) This requires helping overcome inhibitions, behaviors, and beliefs about learning.⁵¹

A full analysis of andragogy is outside the scope of this paper, but the third point above must be highlighted for the purpose of this paper. JCSP students bring a wealth of experience to the course, and are accustomed to operating in an environment with a bias to action. Anecdotally, students sometimes find it difficult to find the motivation to write academic papers, as their efforts are not perceived to be leading to any action, decision, or outcome, as they may be accustomed to. Thus, ensuring there are many possible opportunities for student work to directly contribute to the CAF in various ways could help improve students' learning experience. There are two adult learning philosophies that have been used at CFC over the last two decades that we will now examine.

Bloom's Taxonomy of Educational Objectives was developed as a "framework for classifying statements of what we expect or intend students to learn..."⁵² It was first introduced at CFC in the late 1990s, and helped spur the shift from passive lectures to active lecture-discussions.⁵³ Bloom's Taxonomy provided a useful framework for CFC staff to realize that passive lectures only engaged students in the knowledge, comprehension, and application cognitive domains; they did not sufficiently challenge students to reach for analysis, synthesis, or evaluation—the cognitive domains where

⁵¹ Connor, "Introduction to Andragogy..."

⁵² David R. Krathwohl, "A Revision of Bloom's Taxonomy: An Overview," In *Theory into Practice*, Autumn Volume 41, Number 4, Autumn 2002, p. 212.

⁵³ Wakelam, "Dealing with Complexity...", 13.

critical thinking occurs. This framework is still valuable for considering the objectives to be achieved when developing when developing course material.

**Table 3—Bloom’s Taxonomy of Educational Objectives
(Original and Revised)**

Bloom's Taxonomy	
Original (1956)	Revised (2001)
Knowledge	Remember
Comprehension	Understand
Application	Apply
Analysis	Analyze
Synthesis	Evaluate
Evaluation	Create

Source: Compiled by the author from David R. Krathwohl,
“A Revision of Bloom’s Taxonomy: An Overview,”
Theory Into Practice, Volume 41, Number 4, Autumn 2002.

A more recent addition to CFC’s toolbox is heutagogy, “a teaching method focused on collaboration, critical self-reflection, and student-driven learning.”⁵⁴ Its implementation was driven in part by the publication of the Canadian Armed Forces Diversity Strategy in 2016, as heutagogy has the potential to enable JCSP students to “develop cultural competence by critically reflecting upon their own institutional and Canadian cultures.”⁵⁵ The many reflective writing assignments throughout serve as a tool to help willing students develop their own practice of self-reflection. Although heutagogy may be one of the ‘newest’ methodologies seen at CFC, its emphasis on self-reflection echoes another philosophy that may be more familiar to military practitioners. Self-reflection features prominently in stoicism, which has seen a resurgence in military and

⁵⁴ Vanessa Brown, and Alan Okros, "Unlearning “Stranger Danger”: Developing Cultural Competence in Canadian Military Professionals through Collective Learning and Self-Reflection." In *Warriors Or Peacekeepers?* Springer International Publishing, Cham, (2020), 75.

⁵⁵ Brown, “Unlearning...,” 78.

business spheres in recent years;⁵⁶ framing the practice of reflection in this way help students appreciate its value.

Understanding both the purpose of a think tank, as well as the thinking behind CFC's teaching and learning methodologies, it is clear that the expertise and structure necessary for a think tank exists within the CFC construct. It may also be suggested that more actively sharing student work could increase students' motivation, and thus the quality of their work. Students are also provided new tools and frameworks for thinking about problems and putting their experience into context, in ways that have the potential to lead to interesting new ideas. The question that remains is whether the sum of these parts actually creates a body of work that may be of interest to others. Let us look at the papers that have been produced over the last 25 years to assess their potential value as fuel for a think tank.

Meta-analysis of 25 years of Papers

The CFC papers database holds 3,605 student papers, which are searchable by keyword in the title, by author, by program, or by year.⁵⁷ 252 papers were written by NSP (or equivalent) students, with the remainder written by JCSP students. The database was not designed with a meta-analysis of its contents in mind; CFC's webmaster provided the author with a list of paper titles sorted by year, which is what was used for the following analysis.

⁵⁶ Joe Byerly, "Studying the Stoics: It's About Progress, Not Perfection," From The Green Notebook, 29 September 2020, accessed 3 May 2022, <https://fromthegreennotebook.com/2020/09/29/studying-the-stoics-its-about-progress-not-perfection/>

⁵⁷ CFC Papers database, <https://www.cfc.forces.gc.ca/303/171/171-eng.html>.

Students are able to select the topics of the major papers that they write, meaning that this database provides a unique insight into the topics that are of interest to the future leaders of the CAF. A complete indexing of the topics covered by the papers was beyond the scope of the analysis; a preliminary survey, with assistance from CFC's library, turned up 164 distinct topics. As such, the author selected 25 key topics sorted into four broad themes that are particularly pertinent today.⁵⁸ The intent behind this approach was to determine what trends or weak signals there might exist within this dataset. As noted above, this method does not address the *quality* of the papers written, but it is a reflection of the curiosity of the CAF's officer corps. The data is summarized graphically below; raw data can be found in Annex A.

Imagining The Future

Covering seven selected topics, this theme is a snapshot of how CFC students look to the future of the CAF. Two papers stand out in particular. A very prescient 1999 paper on artificial intelligence reflected on the how this technology may play a role in future command and controls systems; the next paper on this topic did not appear until 2015. One has to wonder whether this 'divergent thinker' found an audience within the CAF for these ideas at the time, or if they sought more creative pastures. Meanwhile, the first papers looking at cyber warfare were seen in 2003 and 2006; did the CAF miss an opportunity to start having these discussions almost 20 years ago?

⁵⁸ Since the author undertook this project, the veteran-run tech start-up With You With Me (WYWM) decided to use this database as a training case study to demonstrate different tools to analyze large quantities of data. <https://www.withyouwithme.com/canada/rise-for-canada>

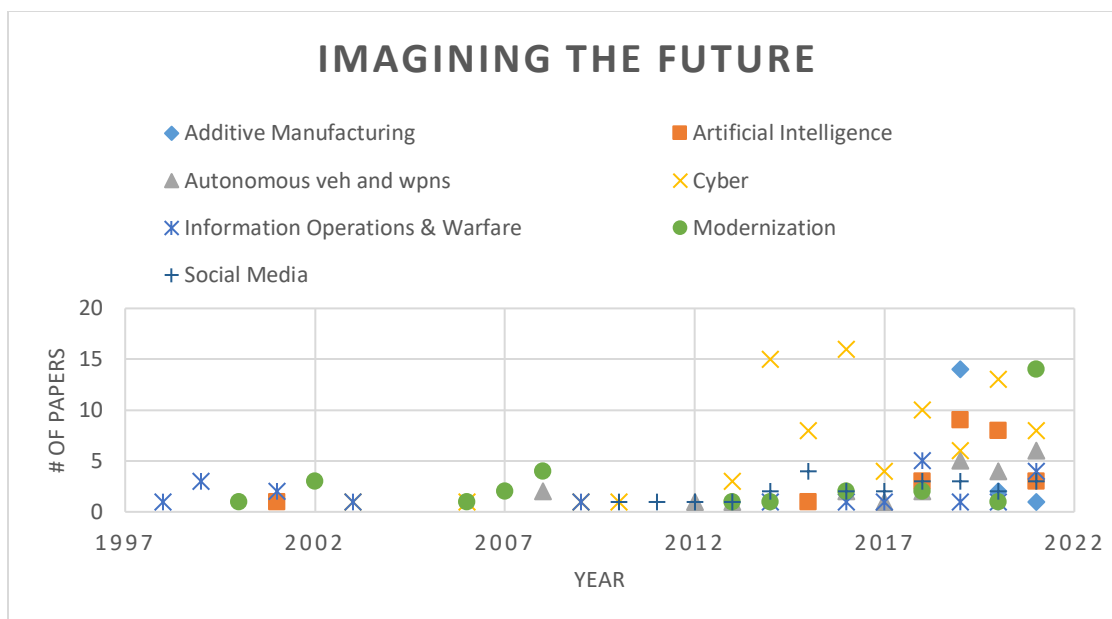


Figure 2—Number of papers written each year on selected topics in the theme “Imagining The Future”

Source: Compiled by the author from the CFC Papers database

The World And Our Place In It

The arctic started to figure prominently in student papers after 2005. The first paper looking at the potential impact of climate change⁵⁹ on military operations and security appeared in 2006, followed by one or two papers most subsequent years. This might correspond with the publication of the 2005 defence white paper “A Role of Pride and Influence in the World,” which suggested that the possibility of security implications in the arctic due to climate change.⁶⁰ Given how long the government has been aware of this possible problem, have CAF leaders done enough to prepare for it? Did those students who cared enough to write about this topic, which has only continued to grow in importance, have a chance to work on a file related to the arctic or climate change?

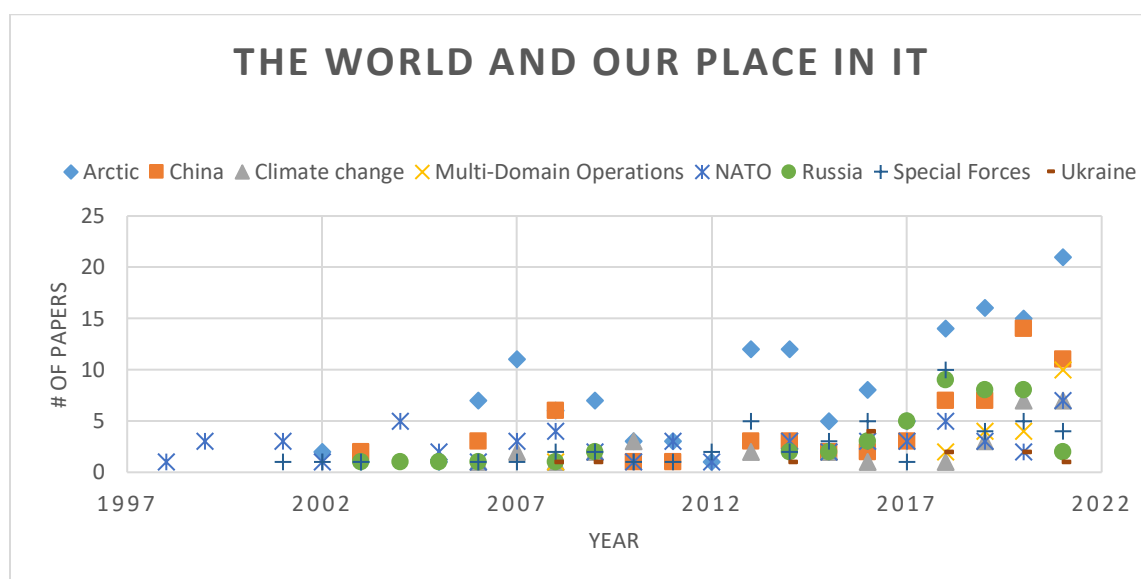


Figure 3—Number of papers written each year on selected topics in the theme “The World And Our Place In It”

Source: Compiled by the author from the CFC Papers database

⁵⁹ Most early papers refer to global warming, although the white paper uses the term climate change.

⁶⁰ Department of National Defence, “A role of pride and influence in the world: Canada’s international policy statement,” 2005, 17.

Cognitive Tools

A 2006 NSP student paper bemoaned the lack of a culture of strategic thought within the CAF. Depending on how long they remained in the CAF, they may have been heartened to see an increase in the number of student papers exploring the complexity of various problems, a detailed analysis of JCSP curriculum with a focus on thinking, and the introduction of the framework of a Wicked Problem and design thinking. The question that remains is whether the authors of these papers brought these new concepts back to their respective units, and shared them with others; one hopes that the quality of the CAF's strategic thought has improved since this 2006 critique.

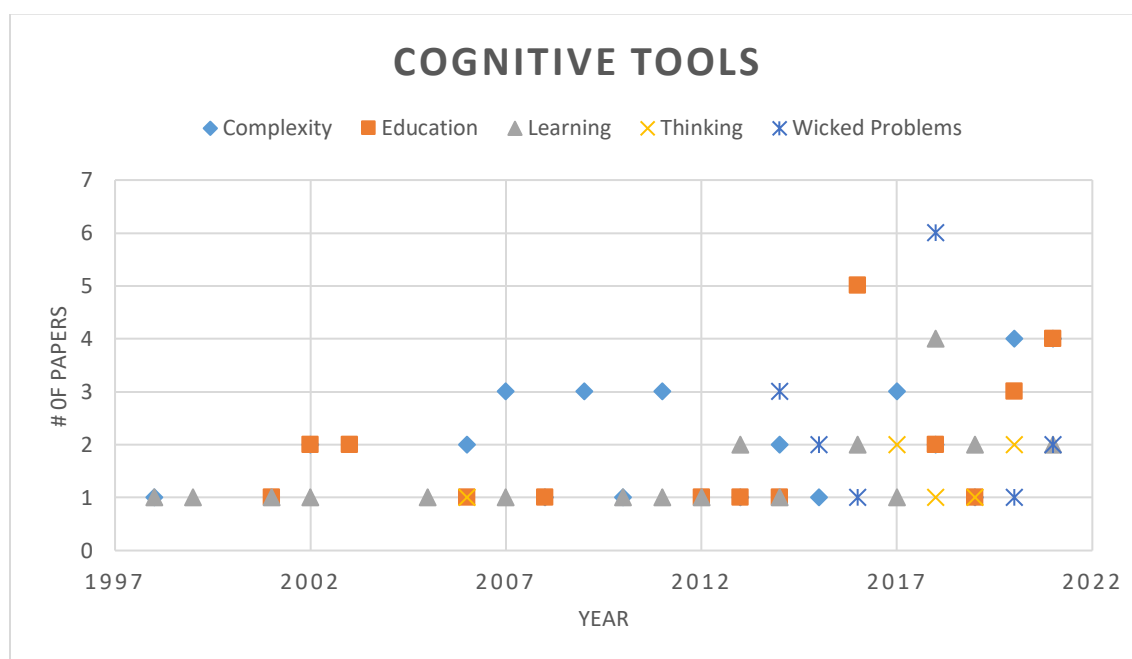


Figure 4—Number of papers written each year on selected topics in the theme “Cognitive Tools”

Source: Compiled by the author from the CFC Papers database

The Human Element

Although culture, recruiting, retention, and the successful inclusion of women within the CAF have become particularly prominent topics over the past year, CFC students have long been thinking about them. As far back as 1999, the challenge of retaining women was recognized, and this discussion just as pertinent today. The idea of implementing 360° feedback as a key component of annual reviews and leader selection was proposed in a 2004 MDS. Considering that 360° reviews are becoming a component of leader selection after several high profile incidents with senior leaders, one has to imagine that the author of that MDS might feel like Cassandra of Greek mythology, foretelling a future only to have it ignored.

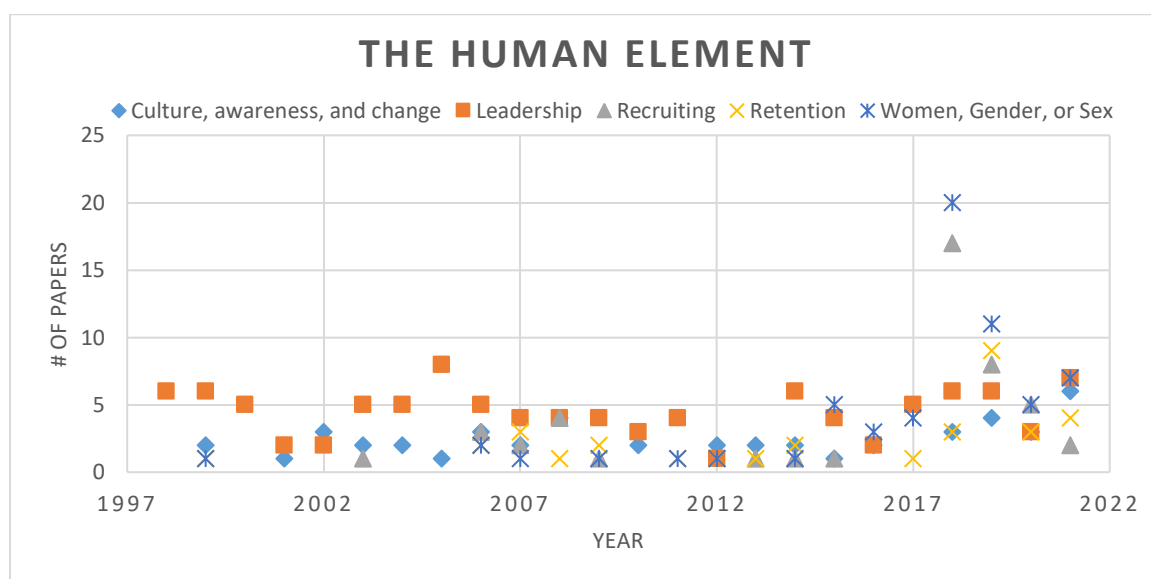


Figure 5—Number of papers written each year on selected topics in the theme “The Human Element”

Source: Compiled by the author from the CFC Papers database

It is easy to pick weak signals out of the noise in retrospect. The primary take away from this overview is that there are valuable ideas that come out of the CFC student body, sometimes many years ahead of their time. Enabling these ideas to circulate more

widely within the CAF—both with senior leaders and decision-makers, but also with the next generation of leaders and thinkers—may serve to help encourage innovation, and make it easier for the CAF to evolve as the current demands that we do.

So what to do with all of this collective brainpower?

Professional development and writing on topics important to the profession have long been important to the current CDS. In 2015, then BGen Eyre stated the value of sharing experience through writing:

The world situation we face now is so complex. So it requires not only good training at the lower levels but our leaders need to be extremely well educated in order to be able to deal with these complexities... As professionals, it's incumbent on us to contribute to the body of professional knowledge. We've got some guys with some great experience overseas, but they've got to put pen to paper and capture it. The more leaders we get writing -- committing their thoughts to paper -- I think the better.⁶¹

With limited and relatively exclusive⁶² venues to publish such papers, opportunities for mid-level leaders to realize General Eyre's vision have been and currently remain limited. Compared with our allies, most notably the US and Australia,⁶³ the CAF is sorely lacking in avenues for professional discourse. Perhaps more importantly, the CAF does not—yet—have a culture of sharing thoughts to generate serious discussion in this manner, putting fledgling professional development initiatives such as Canadian Army Command and Staff College's (CACSC) Line of Sight⁶⁴ in peril of losing momentum.

⁶¹ Trevor Robb, Great warriors need great education: Canadian Brig.-Gen Wayne Eyre, Edmonton Sun, 6 February 2015, <https://edmontonsun.com/2015/02/06/great-warriors-need-great-eduction-canadian-brig-gen-wayne-eyre>, accessed 12 April 2022.

⁶² The Canadian Military Journal (CMJ) has a very high bar for publication, and articles tend to be so academic as to discourage submissions.

⁶³ The Australian PME site "Grounded Curiosity" keeps an updated network map of the PME resources publicly available throughout the Five Eyes <https://groundedcuriosity.com/>

⁶⁴ Line of Sight, <https://www.canada.ca/en/army/services/line-sight.html>, accessed 14 April 2022.

Line of Sight, the Canadian Army’s professional development website aimed at junior officers and non-commissioned officers, was established in October 2021 after almost three years of planning and preparation.⁶⁵ For this kind of initiative to succeed in the long term, that is to say, to survive after its creators are posted into different roles, it must continue to draw the attention of its target audience, which means it regularly requires new content. Herein may lie an important opportunity for CFC.

Building this culture of leaders “committing their thoughts to paper” as imagined by General Eyre will be an important step toward enabling CFC to embrace its full potential as a think tank. Currently, only a select few student papers are recommended for submission to the Canadian Military Journal (or other publications) each year, while the remainder may be found in the CFC papers database for those who know where to look.⁶⁶ This ‘passive’ approach to access generates very little incentive for students to share their papers more widely, and does not facilitate research into topics or discussion areas that may be of interest to others. The entire database is slated to migrate to the Government of Canada (GoC) Publications database,⁶⁷ a move that “aligns with the GoC strategy which includes a single repository for GoC publications.”⁶⁸ While the GoC publications database has a more user-friendly interface than CFC’s and is likely more widely familiar to Canadians, this migration is not expected to change the ‘passive’ approach to access. How else might CFC manage and promote the knowledge that it generates?

⁶⁵ Col T. Strickland, Commandant of Canadian Army Command and Staff College, conversation with author, 27 April 2022, with permission. Initially modelled after the Australian Army’s “The Cove,”⁶⁵ it is intended to generate conversation and curiosity without being pedantic. Accessibility, both in terms of the style of writing as well as the readability of articles on mobile devices, is at the heart of this endeavour.

⁶⁶ CFC Papers database may be found here: <https://www.cfc.forces.gc.ca/303/171/171-eng.html>

⁶⁷ Government of Canada Publications <https://www.publications.gc.ca/site/eng/home.html>

⁶⁸ Cathy Murphy, “Use of student papers,” (email, Canadian Forces College, Toronto, On, 13 April 2022), with permission.

A step as simple as annually distributing an easily searchable catalogue of CFC papers by topic could enable senior CAF leaders to connect with recent JCSP grads to help bring together teams with specific areas of interest and expertise. Requiring students to draft a plain language summary of their papers could have the dual benefit of practicing an important professional skill, while at the same time creating a short article that could be published on professional development forum such as Line of Sight to generate interest and further discussion.⁶⁹ Sharing student papers broadly—directing some ‘up and out’ to senior leaders, and others ‘down and in’ to the CAF’s internal PD networks—could have a twofold effect. First, it creates a greater incentive for students to write their papers, knowing that they are more likely to be read and considered by others. Second, it models the act of writing professionally to the next generation of leaders, which may in turn encourage them to start to try writing professionally. Within a few short years, this impact on the next generation of leaders will become evident as those leaders arrive on JCSP already with a taste for sharing professional knowledge and writing. This in turn may lead to higher quality student papers, and thus more opportunity to share them with the wider defence and security community. This flow of knowledge through CFC is proposed in Figure 6 below. In a sense, CFC’s student body has the potential to serve as a flywheel,⁷⁰ maintaining the momentum of intellectual discourse within the CAF’s PD effort.

⁶⁹ Conversation with Col T. Strickland, 2022.

⁷⁰ Shane Parrish, “Jim Collins: Keeping the Flywheel in Motion,” The Knowledge Project podcast, episode 67, <https://fs.blog/knowledge-project-podcast/jim-collins/>

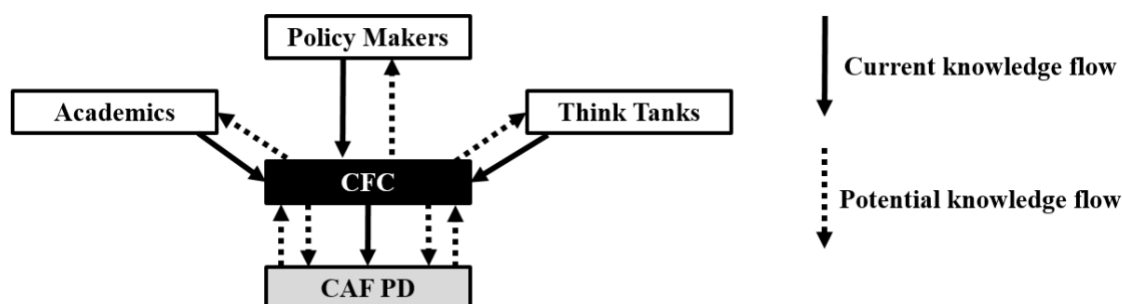


Figure 6—Current and potential flows of knowledge through CFC

CONCLUSION

Canadian Professional Military Education has evolved significantly since the first Canadian staff courses were established during World War II. Recognizing the need for leaders to operate and thrive in ever more complex and ambiguous situations, courses offered by the Canadian Forces College focus on the critical thinking and communications skills required to solve novel problems. Students bring a great depth and breadth of military experience to the Joint Command and Staff Program, and part of the College's role is to enable them to meaningfully reflect on the lessons they have learned throughout their careers and make sense of them within a broader, strategic context. Capturing students' ideas in the form of academic-style papers is an important exercise not just for the individual students' development, but also as a means of 'contributing to a body of professional knowledge,' and modeling that same obligation to the next generation of leaders.

While there may be many Canadian think tanks that contribute to the professional discourse on defence and security, there is still an important place in the conversation for practitioners. A review of the 'body of professional knowledge' that already exists within the College's database of student papers demonstrates that the curiosity, critical thought, and foresight required to inject cogent ideas into the defence and security realm exist.

Indeed, these papers are already widely accessed by those who know where to look for them. Actively managing this database, tailoring papers to submit as articles for specific audiences, and encouraging students to examine and challenge each other's ideas, could help power the flywheel of the professional development culture that General Eyre imagined in 2015. Although the current staffing for the Joint Command and Staff Program does not have the capacity to take on these additional responsibilities, a suitable structure may already exist on paper within the College's Centre for National Security Studies. The components required for the College—fueled by the intellectual energy of its student body—to reach its potential as a unique and knowledgeable voice within the ecosystem of Canadian defence and security think tanks are all in place. All that is needed is the will and the support to take the next step and join the conversation.

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Annex A – Number of papers written by CFC students each year, sorted by topic and theme

Theme	Topic	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	TOTAL
Imagining The Future	Additive Manufacturing				1														1				14	2	1	17
	Artificial Intelligence																					3	9	8	3	25
	Autonomous veh and wpns											2				1	1			2	1	2	5	4	6	24
	Cyber						1			1			1	1			3	15	8	16	4	10	6	13	8	87
	Information Operations & Warfare	1	3		2		1						1					1		1	1	5	1	1	4	22
	Modernization			1		3				1	2	4					1	1		2		2		1	14	32
	Social Media													1	1	1	1	2	4	2	2	3	3	2	3	25
The World and Our Place in It	Arctic					2	1		1	7	11	6	7	3	3	1	12	12	5	8	5	14	16	15	21	150
	China						2			3		6		1	1		3	3	2	2	3	7	7	14	11	65
	Climate change									1	2	1	2	3			2		2	1		1	3	7	7	32
	Multi-Domain Operations											1										2	4	4	10	21
	NATO	1	3		3	1		5	2	1	3	4	2	1	3	1		3	2	3	3	5	3	2	7	58
	Russia						1	1	1	1		1	2					2	2	3	5	9	8	8	2	46
	Special Forces				1	1	1			1	1	2	2	1	1	2	5	2	3	5	1	10	4	5	4	52
	Ukraine											1	1					1		4		2		2	1	12
Cognitive Navigation Tools	Complexity	1				2				2	3	1	3	1	3		1	2	1		3	2	1	4	4	34
	Education				1	2	2			1		1				1	1	1		5		2	1	3	4	25
	Learning	1	1		1	1			1		1			1	1	1	2	1		2	1	4	2		2	23
	Thinking									1											2	1	1	2		7
	Wicked Problems																	3	2	1		6		1	2	15
The Human Element	Culture, awareness, and change		2		1	3	2	2	1	3	2	4		2		2	2	2	1	2		3	4	3	6	47
	Leadership	6	6	5	2	2	5	5	8	5	4	4	4	3	4	1		6	4	2	5	6	6	3	7	103
	Recruiting						1			3	2	4	1				1	1	1			17	8	5	2	46
	Retention		1							2	3	1	2		1	1	1	2			1	3	9	3	4	34
	Women, Gender, or Sex		1							2	1		1		1	1		1	5	3	4	20	11	5	7	63

Source: CFC Papers Database <https://www.cfc.forces.gc.ca/303/171/171-eng.html>

Note: Many papers cover more than one topic. For instance, there are a number of papers that specifically look at retaining women within the forces; these were captured under both the topics of Retention as well as Women, Gender, or Sex.