





Professional Military Education: Making the Right Decisions for the Right Reasons

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Exercise Solo Flight

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INTRODUCTION

At the onset of the COVID-19 pandemic in 2020, learning institutions of all stripes scrambled to convert their course content to a remote or online delivery model or facing decisions to cancel courses altogether. As a result, a phenomenon emerged that some researchers termed "Emergency Remote Teaching."¹ Emergency Remote Learning (ERT) involves:

A temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances. It involves the use of fully remote teaching solutions for instruction or education that would otherwise be delivered face-to-face or as blended or hybrid courses and that will return to that format once the crisis or emergency has abated.²

Institutions of higher learning are now faced with decisions in light of the staggering pace at which some faculty moved their content online. Many are contemplating the idea of continuing online delivery models or hybrid delivery models involving a combination of face to face instruction in the post-pandemic context.

This rapid shift in content delivery modality has caused some lingering effects. Many felt as though it was a temporary substitute for "the real thing"...: that is, traditional face to face delivery. In fact "[o]nline learning carries a stigma of being lower quality than face-to-face learning, despite research showing otherwise. These hurried moves online by so many institutions at once could seal the perception of online learning as a weak option..."³

¹ Charles Hodges et al, "The difference between emergency remote teaching and online learning", *Educause Review* (March 2020). https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning.

 $^{^{2}}$ Ibid.

³ Ibid.

Given these circumstances, it is easy to question the efficiency and effectiveness of online learning, especially when looking at the viability of this method over time in the context of higher education, as academic institutions, including military institutions are assessing the viability of this option.

Specifically, the question of efficiency and effectiveness of the online delivery model prompts the following question: in comparing online distance learning and face to face education, is face to face education more effective and efficient than online distance learning in the context of professional military education (PME)?

In light of the examination of the body of research and existing literature on the topic, this paper will argue that online learning for PME is as effective and more efficient than face to face education. Additionally, it will be argued that decisions made to adopt online delivery models or hybrid models are influenced by misconceptions about online learning. More specifically, the paper will examine if the right people, armed with the right information are making the right decisions.

This paper will first define the concepts of online learning, e-learning and distance learning to ensure a common understanding is achieved. Efficiency and effectiveness will also be defined and contextualized. Second, current myths and misconceptions when approaching online learning will be explained and deconstructed. Third, the advantages of using online learning in the context of PME will be argued. Finally, the relationships of faculty, military staff and training advisors in making decisions on the appropriate method of delivery for PME will be explored and key considerations for decision making on hybrid model, face to face or online delivery for a learning program will be proposed.

DISCUSSION

Online learning: a confusion of meanings?

When discussing online learning, different terminology emerge with various modalities all of which are generally viewed as synonymous with online learning. The words, e-learning, distributed learning (DL), computer based learning are all employed in the common vernacular, all equating to the same thing. It is important to pause and define these concepts for what they really mean, as even if current available literature is abundant on the efficiency and effectiveness of online learning, it often fails to define what is meant exactly by online learning.

First, it is appropriate to review how online learning is defined in contemporary literature. In an exploration of the many definitions of online learning over time, Singh and Thurman note that the term was first used "…in 1995 when the web-based system WebCT was developed as the first Learning Management System (LMS), which later became Blackboard."⁴ In conducting the inventory of articles defining online learning overtime, Singh and Thurman also outlined some common elements that make up online learning, including the use of the internet as a means to collaborate and to enhance interaction.⁵ It also involves "[1]earning [that is] organized or delivered through webbased or internet based technologies."⁶ It includes: "features such as whiteboards, chat rooms, polls, quizzes, discussion forums and surveys that allow instructors and students

 ⁴ Vandana Singh and Alexander Thurman, "How Many Ways can we Define Online Learning? A Systematic Literature Review of Definitions of Online Learning (1988-2018)," *The American Journal of Distance Education* 33 no 4, 289, https://doi.org/10.1080/08923647.2019.1663082
 ⁵ *Ibid.*, 295

^{1010., 293}

⁶ Ibid., 295.

to communicate online and share course content side by side."⁷ More broadly, Fry defines e-learning as: "delivery of training and education via networked interactivity and a range of other knowledge collection and distribution technologies."⁸ It is also important to note that online learning is not a novel idea. Records of online education being used by universities date as far back as the 1980s and maturation of this modality was achieved during the 1990s and 2000s.⁹ Finally, Singh and Thurman also outline the confusion reigning amongst the educational community around the exact definition of online learning.¹⁰ *The Canadian Forces Training and Education System (CFITES) Manual of Training and Education, Volume 1(1), Glossary* defines online learning as: "another term for e-learning. The use of Internet and intranet technologies to deliver a broad array of solutions designed to enhance knowledge and performance. Incorporates distance and distributed learning concepts."¹¹

⁷ Khadijah Mukhtar et al, "Advantages, Limitations and Recommendations for Online Learning during COVID-19 Pandemic Era," *Pakistan Journal of Medical Sciences Quarterly* 36, no S4 (May 2020), https://www.proquest.com/scholarly-journals/advantages-limitations-recommendations-online/docview/2413712377/se-2?accountid=9867.

⁸ Kate Fry, "Forum focus and overview", in Fry, K. (Ed.), *The Business of E-Learning: Bringing your Organisation in the Knowledge E-conomy*, (Sydney: Telcam Group, University of Technology, 2000) quoted in Kate Fry, "E-learning markets and providers: Some issues and prospects," *Education+ Training*, 43 no 4/5, (2001), 234.

⁹ Olasile Babatunde Adedoyin and Emrah Soykan, "Covid-19 pandemic and online learning: the challenges and opportunitie," *Interactive Learning Environments*, 2020, 3, https://doi-org.cfc.idm.oclc.org/10.1080/10494820.2020.1813180

¹⁰ Singh, Vandana and Alexander Thurman. 2019. "How Many Ways can we Define Online Learning? A Systematic Literature Review of Definitions of Online Learning (1988-2018)", https://doiorg.cfc.idm.oclc.org/10.1080/08923647.2019.1663082

¹¹ Department of National Defence, A-AD-121-FO1/JX-000, *Canadian Forces Individual Training and Education System (CFITES), Manual of Individual Training and Education, Volume 1(1), Glossary,* (Ottawa: DND Canada, 2002), 28.

Interestingly, the manual also includes two other related concepts to online learning; e-learning, distance and distributed forms of training. The Manual of Training and Education defines e-learning as:

...training, education, coaching and information that is delivered digitally. e-Learning is normally delivered through a network or the Internet but it may also be delivered via CD-ROM. In most organizations, personal computers are used to deliver e-learning digitally but personal digital assistants (PDAs) and other wireless devices are increasingly being used. e-Learning therefore includes multimedia CBT (computer-based training) and other forms of technology-assisted learning.¹²

This definition is all-encompassing and includes online learning as one form of e-

learning as learning may be mediated through other forms of digital technologies (CD

ROM, PDA, computer based training).

The other characteristic of online learning included in the Manual of Education

and Training is distributed and distance learning. Distance learning is defined as:

any form of learning where time, location, or both separate instructors and learners. In the DND context, distance learning is a sub-set of Distributed Learning. It involves the delivery of standardized training, education or professional development using multiple media and technologies when and where needed. It may involve learner-instructor interaction in both real time (synchronous) and non-real time (asynchronous). It may involve self-paced asynchronous learner instruction without benefit of access to an instructor. In all instances it involves a physical separation between the learner and instructor and usually occurs outside the confines of the resident training establishment or campus¹³

The key elements of distance learning include the physical separation from

learners and instructors and involves two types of interactions, synchronous where

¹² *Ibid.*, 16.

¹³ *Ibid* ,15.

learner and instructor interact in real time and asynchronous which implies self-paced

learning for the student.

Finally, distributed leaning is defined as:

...the delivery of standardized training, education or professional development using multiple media and technologies when and where it is needed. It may involve learner-instructor interaction in both real time (synchronous) and non-real time (asynchronous). It may involve self-paced asynchronous learner instruction without benefit of access to an instructor. It does not necessarily involve a physical distance between the learner and instructor or need occur outside the confines of the resident training establishment or campus. The dispatch of instructors from a training establishment to a unit or an-other location to conduct training, or the hiring of qualified instructors in other locations to conduct the training on behalf of a training establishment fall within the realm of Distributed Learning.¹⁴

In contrast to distance learning, distributed learning does not necessary involve

the physical distance between learners and instructors. It rather implies a hybrid environment where a combination of self-paced or asynchronous learning might occur in a training establishment and some synchronous interaction might also be leveraged in combination.

Other key concepts important for this analysis are the concepts of efficiency and

effectiveness. Going back to the CAF Manual of Individual Training and Education,

effectiveness is contextualized within the quality control process.

The system illustrated at Figure 7 below presents the interrelated steps starting from the assessment of the need for an instructional programme and inputs to the design,

¹⁴ *Ibid*.



implementation, evaluation and maintenance of instructional programmes.¹⁵

Figure 7, Quality Control Process. Source: Manual of Individual Training and Education, Volume 1 Interim guidance, Introduction\Description, 13.

Effectiveness in the context of the CAF Individual Training and Education system

is integrated within the quality control system. "In the education context, quality control

ensures that defined outcomes are achieved and contribute to the development of the

professional military member."¹⁶ Optimum efficiency is one of the fundamental

principles of the CFITES and asserts that:

The concept of optimal efficiency requires that performance objectives, delivery strategies, resource expenditures and the number of personnel requiring IT&E be controlled to ensure operational needs are achieved at minimum acceptable cost when IT&E is selected as a solution to a performance deficiency.¹⁷

¹⁵ Department of National Defence, A-AD-121-FO1/JX-000, Canadian Forces Individual Training and Education System (CFITES), Manual of Individual Training and Education, Volume 1, Interim Guidance Introduction/Description, (Ottawa: DND Canada, 2002), 10 ¹⁶ *Ibid.*, 12.

¹⁷ *Ibid.*, 11.

In sum, an educational program is effective if it meets the learning objectives previously defined. Efficiency is how well the program meets the objectives in terms of training and educating the right people, at the right time, for the right cost.

With the multiplication of terms related to online learning and the fact the terms are being used interchangeably by academic faculty and military staff, it is no wonder that there exist a confusion of meanings in the use of online learning. Some professionals will consistently refer to what is really meant as online learning as e-learning, distributed or distance learning or the colloquially used term "DL" to refer to everything delivered online. This confusion of meaning serves as a basis to illustrate the level of confusion when critiquing online learning delivery models and may be contributing to axiomatic thinking based on misconceptions on the effectiveness and efficiency of online learning.

Armed with these definitions we can identify common features when using the term online learning:

- 1. It features the use of the internet through a LMS to deliver knowledge or enhance performance.
- 2. It can be synchronous (real-time interaction) or asynchronous (no real-time interaction).
- 3. It can be done by distance (physical separation with learners) or it can be distributed (multiple use of media when and where needed).

For the purposes of this paper, the following definition of online learning will be used to convey the arguments in support of the thesis: Online Learning uses the internet through a LMS to deliver skills and knowledge with real-time interaction

(synchronously) or with no real-time interaction (asynchronously).

Debunking myths and misconceptions about online learning

In reviewing literature on predominant myths and misconceptions that exist about online learning, it is appropriate to regroup those in broader categories and then explore them individually in order to demonstrate that these misconceptions are not necessarily founded in facts. The table below summarizes three broad categories of misconceptions about online learning:

Themes	Characteristics	Authors
Quality of online product	• Seen as an inferior product by conservative academic elites	Powell and Keen, 2006, p. 288
	• Viewed as operating on the margins of education system	Powell and Keen 2006, p. 288
	• Students with no previous experience expressed unfavorable opinion of online learning	Morais, Morais and Paiva, 2015, p.309.
	• "Online learning carries a stigma of being lower quality than face- to-face learning, despite research showing otherwise"	Hodges et al, 2020.
	• Viewed as surrogate "disruptive" process to face to face interaction	Adedoyin and Soykan, 2020, p.2.
Effectiveness	• Online learning is less effective than traditional methods of learning	Clark, 2002, p.599.
	Inadequate balance of content	Kara, 2021, Table 1, p.4.

	• Overreliance on power point content, inadequate use of other content	Kara, 2021, Table p 4.
Student engagement	• Online learning is demotivating	Clark, 2002, p.600.
	• Online learning is isolating	Guevara et al, 2021, p.6.
	Online learning lacks peer-to- peer engagement	Guevara et al, 2021, p.6., Clark, 2002, p. 600.
	Online learning lacks interaction with instructor\professor	Guevara et al, 2021, p.6. Clark, 2002, p.600.

Working from the broad categories presented above, an examination of these misconceptions is presented below.

Quality of online product. In their portrayal of myths and axiomatic thinking as it relates to online learning, Powell and Keen discuss the perception of online learning as an inferior product by academic elites.¹⁸ They also argues that the ease of access to online learning for those lacking access due to geographic location or wanting to obtain further credentials following prior academic attainment may have been a contributor to this perception.¹⁹ Other authors such as Hodges et al., Morais, Morais and Paiva and Adedoyin and Soykan echo this sentiment as they note that in spite of research proving otherwise, online learning is still viewed as not as good as the "real thing," in other words, face to face traditional instruction.²⁰

 ¹⁸ Richard J Powell and Clive Keen. "The Axiomatic Trap: Stultifying Myths in Distance Education," *Higher Education* 52, no. 2 (September 2006): 287.
 ¹⁹ *Ibid.*, 284.

²⁰ Charles Hodges et al, "The difference between emergency remote teaching and online learning", Educause Review (March 2020). https://er.educause.edu/articles/2020/3/the-difference-betweenemergency-remote-teaching-and-online-learning; Eduardo Morais, Carla Morais, and João Paiva. "Myths

This perception is not based in actual facts as e-leaning has facilitated access to campuses to meet the need of a variety of individuals, as stated by Powell and Keen who indicates that the mandate of online university courses caters to people having no access to traditional university because they are either seeking additional credentials or due to their geographical locations.²¹ Powell and Keen further state that: " [d]istance education can be seen as spreading the benefits of higher learning to those unable to avail themselves of front-end educational opportunities:...²²

Hodges et al., also indicate the perceptions of online learning as an inferior product despite previous research demonstrating that online learning is as effective as other educational means. ²³They explain this perception with the fact that the pandemic has given rise to a form of online learning they refer to as "Emergency Remote Learning."²⁴ This phenomenon explains the rush to throw content online as an emergency measure in reaction to lockdowns. They explain that "[w]ell-planned online learning experiences are meaningfully different from courses offered online in response to a crisis or disaster."²⁵ It is important to mention that that carefully crafted and well-designed online courses can provide the same level of quality as other more traditional media. It is of paramount importance to distinguish between emergency or crisis response online

and Realities of E-Learning: Exploratory Survey of Higher Education Students." *E-Learning and Digital Media* 11, no. 3 (2014): 309; Olasile Babatunde Adedoyin and Emrah Soykan, "Covid-19 pandemic and online learning: the challenges and opportunities"...3.

²¹ Richard J Powell and Clive Keen. "The Axiomatic Trap: Stultifying Myths in Distance Education,"...284.

²² *Ibid.*, 286.

²³ Charles Hodges et al, "The difference between emergency remote teaching and online learning", Educause Review (March 2020). https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning.

²⁴ *Ibid*.

²⁵ Ibid.

teaching from the well-designed options as this form of online learning does not fully capitalize on the variety of modalities and media afforded when careful design methodology is applied to online learning.²⁶

Effectiveness. Clark, who explored the psychological myths of e-learning pointed out that online learning can be perceived as less effective than traditional learning.²⁷Clark invalidated the myth in citing a study conducted by the American Psychological Society and published in 2000 by Fletcher and Tobias surveying nine years of literature on the topic of online learning effectiveness. They expressed the following view: "[1]earners learn more using computer-based instruction than they do with conventional ways of teaching, as measured in higher post-treatment test scores."²⁸They cite higher levels of engagement, participation and interactivity. Higher levels of interactivity leads to higher cognitive engagement which in turn, leads to more retention.²⁹ Further, Clark outlines that as online learning can be self-paced, the pace is set by the learner, not the teacher, enabling students to pause, reflect and integrate the material, again improving retention in long-term memory.³⁰ Also, "[w]hen faced with learning the same things as learners using other approaches, learners using computer-based instruction generally did so in less time.³¹In fact, the time saved varied from 30 percent to 60 percent³²

In 2020, in the context of the pandemic, qualitative studies in health sciences and psychology in Pakistan, Mukhtar et al demonstrated that online learning encouraged

²⁶ Ibid.

²⁷ Donald Clark, "Psychological Myths in e-Learning," Medical Teacher 24, no. 6 (2002): 599.

 ²⁸ J.D. Tobias and S. Fletcher, *Training and Retraining*, (n.p.: American Psychological Society, 2000) quoted in in Clark, Donald. "Psychological Myths in e-Learning."..., 599.
 ²⁹ *Ibid.*

³⁰. Donald Clark, "Psychological Myths in e-Learning,"...599.

³¹ Ibid.

³² *Ibid*.

student-centric learning which was a modality easily applied during the pandemic.³³ Also, the study suggests maintaining further online learning due to its numerous advantages.³⁴ Further, the study from Halima, Eqlima and Belbase suggests that "[t]he level of student engagement in online and distance learning has a positive effect on students' overall performance, including the GPA during the COVID-19 lockdown."³⁵

In the context of PME, the study by Colbath et al. on the use of online learning for PME in the US determined that, due to the flexibility afforded to the students for self-paced learning, the online modality enabled more practice of information retrieval, this leading to increased retention.³⁶

It is also equally important to point out some limitations and barriers related to online learning. Most notably, the use of technology both from a user and teacher perspective can pose a significant challenge. Adedoyin and Soykan, outlined barriers including student's ability to access the technology, including the internet.³⁷ A bad connection can of course, deny students from access to learning content. Also, the untimely pet or family member intrusion during an online class can affect the quality of the online learning experience. Lack of access to proper computer and software may also be a barrier that may disadvantage some students.³⁸ On the faculty side, the emergence of

³³ Khadijah Mukhtar et al. "Advantages, Limitations and Recommendations for Online Learning during COVID-19 Pandemic Era,"... https://www.proquest.com/scholarly-journals/advantages-limitations-recommendations-online/docview/2413712377/se-2?accountid=9867.

³⁴ Ibid.

³⁵ Ahmed Omar Halima, Mohamad Ali Eqlima, and Shashidhar Belbase, "Graduate Students' Experience and Academic Achievements with Online Learning during COVID-19 Pandemic," *Sustainability* 13, no. 23 (2021): 16.

³⁶ Derek Colbath, et al, "Officer Professional Military Education: A New Distance Learning Evolution," (Air University, Squadron Officer School; Maxwell AFB, 2015), 10

³⁷ Olasile Babatunde Adedoyin and Emrah Soykan, "Covid-19 pandemic and online learning: the challenges and opportunities, Interactive Learning Environments,"...,4.

³⁸ Olasile Babatunde Adedoyin and Emrah Soykan, "Covid-19 pandemic and online learning: the challenges and opportunities, Interactive Learning Environments,"...,4.

online education has challenged the workload of both teachers and technical support workers.³⁹

From a faculty personnel perspective, some limitations were highlighted including the lack of competence, comfort and training in the use of platforms to support online learning.⁴⁰ The other aspect is that online learning, while suitable for social sciences and humanities due to the nature of the content, may not be suitable for disciplines requiring psychomotor skills such as sports science, engineering or medical sciences as more hands-on learning experience is required.⁴¹ Mukhtar et al., also noted this lack of compatibility.⁴²

From this analysis, it can be asserted that despite barriers related to the use of technology, access and some compatibility issues, online learning can be as effective if not more effective than traditional delivery methods as it favours cognitive engagement, retrieval of information and retention in long-term memory.

Student engagement. Perhaps one of the most pervasive myths about online learning is that it is demotivating, lacks meaningful learning engagement and is isolating. Clark addressed the myth of demotivation by examining the psychological roots of motivation for a learner. Self-reference is seen as a powerful motivator. When learners can reflect on their experience, make their own choice, that is choosing the media and pace that is more

³⁹ Ibid.

⁴⁰ *Ibid*; Nuri Kara and Turkey Istanbul Bilgi University, "Enablers and Barriers of Online Learning during the COVID-19 Pandemic: A Case Study of an Online University Course," *Journal of University Teaching & Learning Practice* 18, no. 4 (2021), 4.

⁴¹ Olasile Babatunde Adedoyin and Emrah Soykan, "Covid-19 pandemic and online learning: the challenges and opportunities, Interactive Learning Environments,"...,6.

⁴² Khadijah Mukhtar et al, "Advantages, Limitations and Recommendations for Online Learning during COVID-19 Pandemic Era," Pakistan Journal of Medical Sciences Quarterly 36, no S4 (May 2020), https://www.proquest.com/scholarly-journals/advantages-limitations-recommendationsonline/docview/2413712377/se-2?accountid=9867

appropriate for them, they learn faster.⁴³ Countless studies have shown that learning must be learner-centric and not teacher-centric. Online learning, when designed properly affords opportunities for self-reflection, choice of media and moving away from the "chalk and talk"⁴⁴ traditional role of the teacher.⁴⁵

Despite the impression that classroom teaching gives more opportunities for practical experience where the learning content is applied, this is not always the case. A lot of traditional classroom teaching is still based on the "tell and test"⁴⁶ approach. It is true that a classroom can give better opportunities for meaningful group interactions but this is tempered with lower individual cognitive interactions with the material.⁴⁷Clark further states:

Well-designed e-learning content has high levels of interactivity. If this interactivity is relevant it can greatly increase retention, and because there is the possibility of increased levels of simulation the degree of interactivity can potentially be carried through to much higher levels of cognitive engagement⁴⁸

It is true that learning is social in nature. Some evidence suggests that online learning is more susceptible to making student feel disconnected.⁴⁹ However, a carefully designed online program can create opportunities for interactions with other students and teachers.⁵⁰ Hodges et al., further indicate that the three types of interactions lead to successful learning outcome: student to student, student to content and student to

⁴³ Donald Clark, "Psychological Myths in e-Learning."..., 600.

⁴⁴ Ibid.

⁴⁵ *Ibid*.

⁴⁶ *Ibid*.

⁴⁷ *Ibid.*, 601. ⁴⁸ Ibid.

⁴⁹ Katherine Guevara et al, "Busting Myths in Online Education: Faculty Examples from the Field." Journal of Clinical and Translational Science 5, no. 1 (2021): 6. ⁵⁰ *Ibid*.

instructor.⁵¹ Gagné et al., in their seminal work on instructional design, highlight the importance of the three types of interaction.⁵² The perceived lack of interaction can be seen as a showstopper in adopting online learning. It is argued that meaningful interaction can be deliberately integrated in an online learning program.

A review of the literature regarding the most prevalent myths related to online learning reveal that it is as or more efficient than traditional face to face education. Online learning promotes cognitive engagement and retention. It allows learner flexibility to review, retrieve and reflect on content at their own pace. Despite the misconception that online learning is demotivating and isolating, the literature review demonstrates that well-designed online content can foster deep and meaningful interaction.

Advantages and disadvantages of online learning

The next section will outline the advantages and disadvantages of online learning and demonstrate that online learning represents a viable solution for PME, given the right circumstances.

The CAF Manual of Individual Training and Education, Volume 6, Conduct of Instructional Programmes, outlines the following advantages of adopting an online delivery model:

1. Efficiency: has the potential to reduce costs while providing learners the flexibility to complete studies when and where they are. Hybrid models enable

⁵¹ Charles Hodges et al, "The difference between emergency remote teaching and online learning"...https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning.

⁵² Robert M.,Gagné et al, Principles of Instructional Design. 5th Ed. (Toronto: Wadsworth/Thomson Learning, 2005), 211.

students to complete part of their education and training from their home unit and complete it at their training establishment.⁵³

- Synchronicity this mode of instruction enables real-time interaction with the instructor and the group. It enables "presence in the tone and nuance of individual contributions and generates motivation from the group."⁵⁴
- Asynchronicity: this is characterized by no real-time interaction with learners or instructors. It affords learner flexibility and time to reflect.⁵⁵

Other considerations for advantages of online learning are rooted in efficiency. Powell and Keen discuss the undeniable economic advantages: "[p]ut simply: the costs of per unit educational provision tend to decrease as the number of students served increases."⁵⁶ Powell and Keen highlight an important economic consideration in that there is no need for students to relocate or leave the workforce to pursue education.⁵⁷ Beside the obvious cost-reduction opportunities related to not having to maintain facilities for teaching, online learning liberates learners from the constraints of the timetable. Learning can be delivered on-demand, and in proximity to the work environment, having that same work environment deliver the practice required to reinforce the learning.⁵⁸ Many of these approaches are used in the CAF even today because of their efficiency.

⁵³ Department of National Defence, A-AD-121-FO1/JX-000, Canadian Forces Individual Training and Education System (CFITES), Manual of Individual Training and Education, Volume 6, Conduct of Instructional Programmes (Ottawa: DND Canada, 2002), 29.

⁵⁴ *Ibid.*, 30.

⁵⁵ *Ibid*.

⁵⁶ Richard Powell and Clive Keen, "The Axiomatic trap: Stultifying myths in distance education"...285-286.

⁵⁷ Ibid., 286.

⁵⁸ Donald Clark, "Psychological Myths in e-Learning."..., 600.

In their foundational book *Learning Online:What Research Tells Us about Whether, When and How,* Means, Bakia and Murphy outline cost comparison studies of online learning and face to face instruction. They note that for higher education, the impetus for online program development is revenue growth.⁵⁹ That means that university would develop online programs to give access to students who would not normally have access to their program the possibility to enrol. They outline an initiative from the US National Center for Academic Transformation (NCAT), who specializes in proposing blended learning solutions to academic institution. The Center helped re-design courses in order to employ virtual teaching assistants and other cost saving alternatives to inperson teaching, reducing personnel hourly costs.⁶⁰ The initiative showed cost reductions of up to 37 percent and 25 percent improvement in learning outcome in adopting blended-learning strategies. ⁶¹ Means, Bakia and Murphy also caution that this study may have underestimated actual costs and that the data was self-reported.⁶² They also state that:

Despite these methodological weaknesses, the NCAT course redesign models demonstrate the potential of using blended learning models to improve institutional productivity by replacing staff time with a combination of technology and the labor of relatively less-expensive staff, such as teaching or graduate assistants.⁶³

⁵⁹ Barbara Means, Marianne Bakia, and Robert Murphy, *Learning Online: What Research Tells Us about Whether, When and How* (New York: Routledge, 2014), 170.

⁶⁰ *Ibid*.

⁶¹ *Ibid*.

⁶² *Ibid*.

⁶³ *Ibid.*, 171.

Kara further outlines learning enablers such as flexibility, variety of media used in online delivery, the categorization of online content as weekly modules and the unlimited and ease of access to online content.⁶⁴

In terms of disadvantages, the CAF Manual of individual Training and Education warns that intrusions can impede a learner's progress and workplaces must be supportive of establishing a form or learner/supervisor contract to allow sufficient time to complete assigned objectives.⁶⁵

Adedoyin and Soykan, also highlight some barriers to efficiency and effectiveness such as: lack of access to technology, incompatibility with certain types of skill such as motor skills that require hands-on experience, pet and human intrusions during online classes and the heavy workload for teaching and support staff brought-on by the infrastructure necessary to maintain online programs.⁶⁶

Finally, Hodges et al., point out that online learning requires a similar investment by the institution to that of face to face learning in that it must create an ecosystem to support the learner. Creation of well designed online learning for typical university courses can take between six to nine months to conceive.⁶⁷ However, it is important to note that in terms of efficiency, once this ecosystem is conceived and the faculty staff are accustomed to using online delivery after a couple of iterations, it has the potential to be a

⁶⁴ Kara, Nuri and Turkey Istanbul Bilgi University. "Enablers and Barriers of Online Learning during the COVID-19 Pandemic: A Case Study of an Online University Course."...,

⁶⁵ Department of National Defence, A-AD-121-FO1/JX-000, *Canadian Forces Individual Training and Education System (CFITES), Manual of Individual Training and Education, Volume 6, Conduct of Instructional Programmes..., 29.*

⁶⁶ Olasile Babatunde Adedoyin and Emrah Soykan, "Covid-19 pandemic and online learning: the challenges and opportunities, Interactive Learning Environments"...,5.

⁶⁷ Charles Hodges et al, "The difference between emergency remote teaching and online learning"... https://er.educause.edu/articles/2020/3/the-difference-between-emergency-remote-teaching-and-online-learning.

significant force multiplier. Online programs have the potential to afford accessibility and reduce overall costs of maintaining physical infrastructure in an institution only able to accommodate a limited number of students within the faculty.

The advantages and disadvantages of online learning illustrate that leveraging this method is effective and sometimes more efficient than face-to-face instruction. When conceiving online learning programs, it is key to create the proper infrastructure and consider a larger, virtual ecosystem of support for the learner. The same affordances in terms of social interactions and meaningful engagement can be leveraged and applied to an online program. Meaningful interaction is not exclusive to face to face interaction. It can also happen online. As Hodges and al., rightly remark: "[f]ace-to-face education isn't successful because lecturing is good. Lectures are one instructional aspect of an overall ecosystem specifically designed to support learners with formal, informal and social resources."⁶⁸ And it can be posited that that it is no different for online programs...

Are the right people making the right decisions?

It cannot be overstated that the design of online learning has been the object of an impressive body of research and that online program design constitutes a bona fide science in and of itself.⁶⁹ When considering the transfer of content online and the right modalities to mediate learning, faculty and support staff are often confronted with a lack of knowledge in online instructional design, leading them to merely emulate the face-to-face content in an online design. This may result in ill-conceived programs, lending themselves to criticisms, poor adoption rate and out and out rejection by faculty staff and

⁶⁸ Ibid.

⁶⁹ Katherine Guevara et al,"Busting Myths in Online Education: Faculty Examples from the Field."...2.

students alike. As Guevara et al., point out: "[w]hile faculty are undeniably renowned experts in their disciplines, many lack formal education in how adults learn, or professional development regarding how to design and teach a course using evidencebased methods"⁷⁰ The next section will demonstrate that training experts are needed to enable proper decision-making and instructional design of online programs.

Powell and Keen point out the apparent discomfort of faculty staff in adopting online delivery. Faculty educators that are selected for online learning are mostly educated in a conventional delivery system.⁷¹ They tend to measure the success of online programs through the lenses of their own experience: "…university distance educators, almost exclusively educated in conventional educational systems and successful through them, are prone to invoke their own, romanticized, educational experience as a template for higher education in general."⁷²

An interesting dynamic emerges...the combination of a lack of understanding and application of online program design coupled with memories conjuring ideas of a better time in a more traditional academic environment invites criticism and rejection of online learning from faculty staff as online learning is deemed inefficient and ineffective.

It can be argued, however, that a robust training program for faculty along with a solid technical infrastructure and LMS can mitigate some of these obstacles. It also stands to reason that it would be unfair to leave both military and faculty in institutions of higher

⁷⁰ Ibid.

 ⁷¹ Richard J Powell and Clive Keen. "The Axiomatic Trap: Stultifying Myths in Distance Education."...,
 287.
 ⁷² Ibid.

learning without assistance when deciding which modality to adopt and assist them with designing and supporting such programs.

The role of the Training Development Officer (TDO). The Training Development Occupation was officially created in the CAF on 1 July 1980 as an occupation following a study (Project Delta-T) insisting on the creation of a distinct specialist occupation to support training and development activities in the CAF.⁷³ LCol H.C. "Bud" Taylor, OMM, CD, RCR, an infantry officer is largely credited for the creation of the Training Development Branch following his experience at US Army Training and Doctrine and Training Command.⁷⁴

The intent behind the creation of the TDO occupation was to provide specialist support and an advisory capacity to support operators, decision-makers, and commanders with expertise in the application of the CAF instructional design process. The TDO is ideally suited to provide advice and guidance to decision-makers in properly ascertaining the proper modalities for online learning programs and hybrid program deliveries. TDOs are required to complete a graduate degree in education to join the CAF. They also undergo up to a year of training, focused on the application of the principles of the Canadian Forces Individual Training and Education System. Their training is further augmented by Professional Development opportunities to remain on the cutting edge of developments in the realm of Individual Training and Education (IT&E) as well as in performance improvements. TDOs are employed in CAF training establishments, various training and doctrine headquarters and in project support sections at the strategic level.

 ⁷³ Bitten, M. Delta-T: A History of Training Development in the Canadian Forces (Ottawa: Canadian Forces Training and Development Branch Association, 2007), 101.
 ⁷⁴ Ibid., 78.

The combination of their education, training and experience make them a valuable advisor when considering online delivery solutions for the CAF.

As was demonstrated above, instructional design and by extension, online learning design is a science in its own right. Faculty members, military staff and commanders ought to take full advantage of the training development advisor in deciding to adopt an online delivery approach in the context of PME. The TDO offers unique expertise, devoid of a particular agenda to offer the most efficient and effective training methodology to achieve educational objectives.

In the words of Mike Bitten, a retired Training Development Officer in his accounting of the history of the TDO occupation:

The story of the events leading up to the acceptance of training development as a CF-wide activity, and the formation of the TDO Branch itself, is very much the story of a ten-year struggle to convince senior leaders and managers that the training system as a mechanism for ensuring the quality of training was too important to be left entirely in the hands of people with little or no specialist skill or support.⁷⁵

It is indeed crucial for the CAF to maintain currency in new developments in the realm of education. The CAF has the inherent obligation to strive for efficiency and effectiveness when assessing options for delivery. Proper training of staff, soliciting advice from instructional design experts that are objective, educated and dispassionate is necessary in order to make the right decisions for the right reasons and rise about misconceptions and tropes when employing online learning.

⁷⁵ Ibid., 56

The complexity of online learning design

Some key considerations are offered here for the design on online programs. It is not the purpose of this paper to portray online learning as a silver bullet or a panacea. It is rather argued that armed with the right advice and the right expertise and decisionmaking tools, online learning can be maximized, provided it is the right solution to meet learning objectives. Some key elements of considerations are proposed below.

The CAF Manual of Training and Education, Volume 6 summarizes key

considerations in the conduct of activities for online learning:

DL CONSIDERATIONS		
Have you planned for interaction between the instructor and learners and amongst learners, such as participant discussions or group activities, and how will these activities be conducted?		
How will access to the instructor and/or tutors be provided? How often will interaction between instructor/tutor and learners be required and how will it occur?		
What are the learners' preferences for instructional resources? Do they have access to necessary equipment and instructional materials?		
Have you provided for access to a help desk operator to assist learners to navigate and access the technology?		
Have you received training in monitoring and facilitating online discussion? Are you comfortable completing these tasks?		
Are facilitators available to promote questions and discussion at various sites, if required?		
Have you established procedures and timeframes for feedback on assignments and tests? How will this be done in minimum time?		
Will the DL be synchronous (all learners at the same time) or asynchronous (learners at different times)? Do learners prefer to respond in real time or after reflection? Are time zones a factor and how will they be dealt with?		
Can learners attain the terminal learning behavior? Are learners able to satisfactorily demonstrate performance related to the objectives at a distance if this is the case?		

Figure 7, Distributed Learning Considerations Source: Manual of Individual Training and Education, Volume 6, Conduct of Instructional Programmes, 31.

While these considerations relate to Distributed Learning, those are key questions

one should ask to ensure the level of interaction is maintained, ascertaining comfort level

with online technology from the facilitator, feedback and assessment mechanisms and ensuring learning objectives are met.

In terms of online design considerations, Means, Bakia, and Murphy offer a comprehensive summary of design considerations. They identify nine dimensions when considering options for online delivery. The nine dimensions are summarized below⁷⁶:

- 1. Modality: will the training be fully online or hybrid (50% online).
- 2. Pacing: is it self-paced or class paced?
- 3. Student-instructor ratio.
- 4. Pedagogy: expository, practice, exploratory
- Role of online assessment: determine readiness for new content, attribution of grades, provide information about learning stage.
- 6. Instructor role online: active presence, small or not at all.
- 7. Student-role online: listen or read, collaborate.
- 8. Online communication synchrony: asynchronous, synchronous or both.
- 9. Source of feedback: automated, teachers or peers.

The considerations listed here are complex and necessitate the input of an instructional design expert in decision making. The decision to adopt online learning cannot be based on impressions, feelings, or anecdotal information. The complexity of design and selection consideration for online delivery further support the argument that the right people, experts in the training and education domain, must be leveraged in

⁷⁶ Barbara Means, Marianne Bakia, and Robert Murphy, *Learning Online: What Research Tells Us about Whether, When and How* (New York: Routledge, 2014), Table 2.1, Online Learning Design Dimensions, 27.

finding solutions to support PME program delivery. How and when online learning should be selected involves more than emergency crisis response or just cost savings.

CONCLUSION

This paper sought to demonstrate that online learning is as effective and more efficient than traditional face to face delivery in the context of PME. The definitions of online learning, e-learning, distributed and distance learning were explained, highlighting the fact that confusion exists in the very definition of how online learning is conceived, setting the stage for misunderstanding and misconceptions. The myths and misconceptions about online learning were categorized and systematically debunked, demonstrating that online learning is as effective and more efficient than face to face instruction. It was highlighted that training experts, namely TDOs are ideally suited to help decision-makers in assessing online delivery options as they offer objective and dispassionate input in selecting the right modality to achieve optimal effectiveness and efficiency.

Finally, some considerations and tools for assessing online delivery options were provided to illustrate the complexity of online learning design and the requirement to leverage training specialists. It was argued that these tools and considerations, coupled with leveraging training advisor expertise will lead to the best possible support in decision-making, design, support and maintenance of online education programs.

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