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MAÎTRISE EN ÉTUDES DE LA DÉFENSE
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**DISTANCE LEARNING STRATEGY FOR
CANADIAN FORCES COMMAND AND STAFF COURSE**

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Distance Learning Strategy For
Canadian Forces Command and Staff Course

INTRODUCTION

A changed world requires a changed and adaptable armed Forces. Conflicts and instability throughout the world remain a major concern of Canadian Foreign Policy. In order to fulfil its international commitment to the world, Canada has realised that it must maintain a combat ready force. The Canadian Forces (CF) requires competent, multi-skilled personnel capable of adapting to changing situations by engaging in continuing education in order to obtain the skills necessary to perform in an ever evolving world. This evolution requires officers to be prepared for diverse responsibilities in a multitude of environments. It was also the premise and underlying foundation of the current officer professional development program, a process which has not changed significantly since its inception.

As early as 1968, shortly after the integration of the three elements into a single unified force referred to as the Canadian Forces (CF), Major-General Rowley was appointed to inquire into the professional development of CF officers. This oversight entailed chairing the Officer Development Board. In a March 1969 report, he recognised the necessity for CF leaders to develop continuously in order to become professional leaders ready to fulfil a myriad of missions: “The responsibility of the professional is to society... Social responsibility distinguishes the professional from other experts.”¹

¹MGen Rowley , Report of the Officer Development Board, National Defence, Ottawa, March 1969.

Military leaders, although intelligent and dedicated to the military and Canada, would not necessarily be the combat- ready professional soldiers and leaders Canada required, who would possess the relevant competencies and abilities to keep up with the changing times and meet Canada's national and operational obligations, without appropriate professional training and development.

In 1992-1993, the deployment to Somalia revealed that the CF was suffering from a serious malaise. The Somalia Inquiry described this malaise in terms of shortcomings when it was noted: "more troubling is the fact that many of the witnesses who displayed these shortcomings were officers, non-commissioned officers, and senior civil servants – individuals sworn to respect and promote the values of leadership, courage, integrity, and accountability. For these individuals, undue loyalty to a regiment or to the institution of the military - or even worse, naked self-interest- took precedence over honesty and integrity."² This inquiry generated several studies, among the most significant of which was a review of the relationship between the military and Canadian society. In this latter examination, many factors affecting the CF were reviewed. Military characteristics, public opinion, public relations, the purpose of the armed forces, its training and other related matters all led to the conclusion that: "Nothing distinguishes the soldier from the civilian more strikingly than the acceptance that one of the basic rights that may have to be forgone in the national interest is the right to life. This requirement to give up one's life for one's country is spoken of in military literature as "the clause of unlimited

²Government of Canada, Somalia Inquiry – Executive Summary. Ottawa , 1997. p.2

liability.”³ This remarkable characteristic can only exist when discipline and respect underpin the military ethos, which requires more extensive training and education than other professions.

The Somalia experience illustrated that the Canadian public would not accept the military shifting away from basic values. In order to revitalize, within the military, its value system, the Somalia Inquiry made several recommendations. Many significant changes were initiated to address concerns with respect to leadership, training and selection. The CF has since implemented more than 300 initiatives to strengthen the organisation by making the military justice system more effective, improving leadership, streamlining management and corporate administration, and, by helping Defence be more open and transparent with Canadians. “This is not to say, however, that the process of change and renewal is complete. Defence must continue to adapt. It must continue to re-invest in its people, see through reforms and make the investments needed to maintain the defence capabilities Canada needs for the future.”⁴ Thus, the realisation by the department that more appropriate and flexible professional development, delivered to all officers would result in a more professional officer corps.

Following MGen Rowley’s study and since 1974, the Command and Staff College (CFC) has been preparing officers for senior appointments. It provides extensive residential training to officers to ensure the “continued high-quality leadership of the Canadian Forces.”⁵ However this training is provided only to a limited number of chosen

³ Ibid, p.28

⁴ Government of Canada, Report on Plans and Priorities – 2000, National Defence, 2000, p.3

⁵ National Defence, Canadian Forces College Course Calendar, Toronto, 2001, p.i

officers believed to have the potential to progress further. This admission criteria limits the number of officers allowed to benefit from the qualifications taught at CFC, mostly because of limited capability to deliver the program. This situation results in a complete void of professional development for most majors.

There is little doubt that given the constraints that the CF is currently under, the question of cost effectiveness, accessibility and value added criteria must be at the forefront of any study designed to improve professional development. In addition, the CF must encourage its members to attain the requisite level of expertise and professionalism through self-motivation rather than merely attending a mandatory program targeted at the lowest common denominator. The current initiatives, designed to enhance quality of life of members and their families must, as well, remain an important consideration in the discussion of the choice of learning/training methods. Preliminary research indicates that distance learning may address the need to access large numbers of personnel, but, may fall short with respect to self motivated personal interaction in such a training system.

Is distance learning (DL) a viable option to deliver quality professional development and education to officers at the major rank level? Given a systematic approach, adequate resources and realistic use of technology, the CFC could deliver a DL version of the Maj/LCol CSC to a larger number of officers at different locations. This thesis is assessed relative to the merits of different options, compared using identified strengths and weaknesses. The most significant arguments presented will address three main areas of concern. First the importance of a clear direction as to the target audience,

numbers, resources, costs and staff. Second the accessibility to learner-centred and flexible approach to reach large number of officers in distributed locations and finally the necessity for balance between sound instructional design and appropriate use of technology. A non-concurrent DL version of CSC, based on these criteria is the most favourable option.

CHAPTER 1 - BACKGROUND

The Canadian Forces College (CFC) is mandated to provide training to senior officers as part of the overall CF officer professional development program. Many internal sources have examined, over a long period of time, the question of the abilities and competencies of the military members, both as individuals and as a profession. As early as 1969, the question was raised with respect to the best method to ensure all military members had equal opportunities to develop professionally in order to satisfy the requirements of the CF. Subsequently, the Somalia Inquiry and the Dickson Commission made extensive recommendations as to the requirements for more significant training and development for officers and senior leaders. The CF's recent past has forced a thorough examination of the way our military members are trained, based on the changing world, demographics, and financial resources. In addition, the extraordinary advancement in technology has, thus far, played an important role, but the question of affordability has become the precursor and often pre-requisite to initiatives.

The CF is already experienced at delivering an Officer Profession Development Program (OPDP) by correspondence. This, albeit innovative when first introduced and the only one of its kind in the CF, was left to stagnate without significant needed revisions. The program, now dated, served as a prerequisite to promotion to the rank of Major for most occupations. This program has recently been amended and will be augmented in the future by other profession development initiatives for officers, all of which require time and resources financed by the CF. These initiatives will need to complement the already well-established training and education requirements of each CF trade and occupation.

Continuous budgetary cuts as well as reductions in human resources coupled with a post Cold War operational tempo that shifted the focus from a garrison force to a global deployable force, have combined to create a situation where professional development has become increasingly more difficult to attain for some members of the CF. As well, there has been a significant shift in the nature of professional development required from learning UN-US doctrine to developing, learning, and practising Canadian doctrine. This situation has resulted in leaders experiencing increasing difficulties in permitting officers the time to develop professionally as scarce human resources must be pulled away to attend lengthy courses. As a result, the current approach to professional development is not as beneficial to the CF overall as it could be. Reduction in resources within the CF has created a situation, whereby courses can only be attended once an individual has reached a point where there is no time left before promotion, instead of permitting an incumbent to attend these courses in a more timely fashion, use staff qualifications in their current rank, and prepare for more senior appointments. This situation is further exacerbated by the fact that the current professional development program

The difficulties observed in the CF in attaining a systematic approach to DL appears to stem from a combination of reasons that the CF can no longer afford to perpetuate such as lack of resources to co-ordinate DL initiatives, staff turn over, changing technologies, lack of a developed training system; all have been quoted as some of the reasons why the CF does not yet have a DL strategy. These reasons are extremely valid in the context of the CF reality of 2000 but the political and military leaders must now concentrate on the enhancement of the quality of military leaders, at all levels, while protecting the quality of life that the CF is earnestly attempting to restore.

CHAPTER 2 - REVIEW OF THE LITERATURE

DL is perceived in the military as a new phenomenon. However, it has existed in many forms, and in many circles for decades. A.W. Bates wrote: “In 1969, with the establishment of the Open University in Britain, the face of distance education was changed forever, and open learning as most of us understand it finally arrived. Twenty-five years later an equally dramatic shift is occurring in the world of open and distance learning, this time caused by rapid developments in technology, and especially the Internet.”⁶ Responsively, the literature on the subject of distance learning/distance education or distributed training is considerable and expanding exponentially. Because the subject is very volatile and is continuously evolving in concert with the evolution of Information Technology, related literature is correspondingly expanding. For that same reason, a significant part of the written documentation on the subject is found in journals and periodicals targeting the specialised market of distance education experts.

An assessment of this written material has revealed that the majority of authors approach the subject through case studies or conclusions and/or recommendations drawn from specific endeavours (Wells 1990). Furthermore, the literature was found to be predominantly descriptive rather than empirically based. Many authors describe experiences and the methodology followed, to arrive at their decisions up to and including the choice of medium and the success rate of specific initiatives. This fact is due to the fact that many institutions lack the resources to devote to assessing or validating their distance courses. Consequently, reports are produced describing initiatives that address specific company needs and, therefore, have a narrow focus and

⁶ Bates, AW, The Impact of technological change on open and distance learning, *Distance Education*, 18(1), 1997

application. The nature of these reports are influenced by the fact that many companies have been willing to embark upon DL initiatives but few have been able to maintain a constancy of commitment due to the expenses associated with them. However, these reports all reflect a similar trend which concludes that successful DL must be based on the organisation's needs.

Various other distance learning materials consist of "How to design" distance courses or applications. This material presents approaches that vary from the determination of training based on learners' needs, to the pure course transformation, to a technological methodology to save expenses and cut costs. There is no evidence, however, of any systemically proven or accepted methodology in this field. Earlier literature almost exclusively has been oriented toward teaching environments and institutions with very little focus on professional training in the workplace or professional development. More recent literature presents a more content-focus approach to training and the written material addresses factors affecting businesses such as communication, learners motivation, interaction, feedback, as well as, the nature of the training/course.

One of the elements common to many sources of material is the communication aspect of the learning experience. Mantyla and Gividen (1997) describe distance learning as a system and a process by which learners and learning resources (in this case distributed resources) interact, considered to be the very essence of learning. They still, however define interaction in many different forms. They characterise the process as a

separation in place and time between the instructor and the learner and between the learners and the required resources. Farr and Shaeffer(1993) describe two types of communication: one way communication, in the form of lectures, and, the other as two-way communication in the form of discussions. While these two types of communication are possible in DL, Shale and Garrison in 1990 argued that communication in a distance learning environment must rely on technology. This attention to technology tended to ignore the nature of the communication process for the sake of convenience rather than quality. The following years proved to be a resolution process for the communication concerns. Technology has now reached the point where communication can be attained in one of two ways, that being in true time or by being delayed between one or many learners. Consequently, the issue of communication has lessened in importance.

Bates (1997), Garrison (1985), Moore (1989), Smith (1990), Porter (1997), Hodes (1998) and Westbrook(1999) each discuss interactivity and interaction. While earlier literature raised concerns over the fact that a lesser degree of interaction may lead to lesser quality of instruction, Harris (1991) linked the required level of interaction to the level of cognitive activities. However, Bates (1990) argued that although it is perceived that students in conventional institutions spend much time in meaningful exchange, the reality is that they perform most of the learning through studying and interacting with the material and other media. This theory is supported by Parker(1999) who described varying forms of interaction. Bates' argument was validated by the value of the interaction described by Parker where: "The interaction between instructor and student and among students must direct the creation of a personal information structure which

leads the individual to recognise gaps in understanding and to forge new connections between formally disconnected knowledge. The result of interactive learning can be new knowledge, reorganised knowledge, or simply the awareness of a need for additional understanding.”⁷ The value of interaction is directly related to the competence of the instructor and the quality of the relationship that develops between the instructor and the learner.

Moore (1989) previously declared that interaction was the defining characteristic of education and must be integral to the design of distance education. Porter (1997) agreed that the amount and type of interaction between learners and trainers/educators must form the important element of creating a virtual classroom. This requirement has been largely attained through the evolution of technology, which allows continuous and timely conversation as well as immediate contact/access to resources. Synchronous and asynchronous computer-based systems have, consequently, solved many of the earlier concerns for lack of interaction. Real-time contact is now possible and increases, not only the accessibility to the instructor. Direct access, unfortunately, may also increase the instructor’s workload. However, “The role of the instructor is changed because the technological medium forces educators to develop learner-based environment.”⁸

Interaction is directly related to the element of feedback. In a distance learning setting, learners seeking feedback on a specific item now receive personal responses to

⁷ Parker A, Interaction in Distance Education: The critical conversation, Educational Technology Review, Autumn-Winter 1999, No. 12

⁸ Stammen RM.,Schmidt MA, Basic Understanding fro Developing Distance Education fro Online Instruction, NASSP Bulletin, Reston, Nov 2001, Vol.85 Issue 628, p.47

queries in the same way they would receive written feedback on assignments or submissions from contemporary learning forums. This argument also applies to written instruction for those assignments, which enhances the learning process as it creates a firm set of rules and expectations for the learners to follow and attain. In addition to interaction, the question of motivation has also been addressed. Motivation is not considered as significant an argument in the military context principally because instruction is provided based on professional requirements, and, courses taken for professional development are often mandatory for career progression. However, the interest factor as well as the relevance of the material are important factors in the learning process as well as the will to support the instruction required. Consequently, the delivery media must be suitable in order to contribute to the success of implementing any distance learning process.

Significantly, the following comprehensive list of benefits produced by DL has been compiled by Chute and Thompson (1999) based on reports by organisations that have successfully implemented distance learning programs. Included in this list are the following benefits:

- Distance learning increases the impact and the productivity of dollars invested in training education programs;
- Distance learning reduces travel costs and makes time formerly spent travelling available for more productive purposes;
- Distance learning allows the training of more people, more often, in short learning sessions that are easier to schedule and co-ordinate;

- Distance learning is scalable; it offers the ability to add students and instructors as needed without incurring significant additional expenses;
- Distance learning programs deliver a consistent message that can quickly be disseminated company-wide to ensure the consistency and quality of the work performed by employees or students;
- Distance learning provides for real-time updates and just-in-time information access;
- Distance learning can be delivered to work or home sites that are convenient for students;
- Distance learning offers live interactive programs that can be delivered to multiple networked sites for group learning and collaborative problem solving;
- Distance learning programs are learner-centred, offering students more control of the pacing, sequencing and style of interaction of the learning experience; and
- Distance learning offers easy access to learning resources and remote experts internal and external to the organisation;

In a business environment, distance learning has been studied with respect to its applicability for just-in-time training. Badrul(1997) revealed that such training implies a high level of individualisation and self-direction so that individuals may learn just what they need when they need it. This implies that a significant change in the way we conduct training may be in order. A radical change from “place-based” and “time-fixed” to on-the-job distributed training may, in fact, prove more efficient in terms of time and effort. Deborah, Scheiber and Berge(1998) argued that in every complex problem there is never a simple solution, and, that the “First step of the instructional design model for

effective design and development of distance training is an analysis of business goals and objectives of the organisation. Successful distance training often is defined by the strategic contribution it makes to an organisation.”⁹ Research has, however, indicated that the very success of distance training relies on the relevance of the training to the business goals and objectives of the organisation (Eskow(1997); Green(1997); Robinson and Robinson(1996);Steward(1995) and Newman(1997)). This research is based on reports from companies that indicate there is no significant difference in the achievement of the learners in a well-designed distance learning program than that of the learners in a classroom-based program (Chute and Thompson (1999)).

Military literature reviews the experience of other military forces. The American Marines are much further ahead than any other force. Many military publications and periodicals report the experiences and updates on progress in that field. For example, the American Defence Preparedness Association magazine of November 1999 reports that the Pentagon was to invest \$800 million in DL in the next five years. The potential savings of billions of dollars is also expected to result in improving training for military service members. “Distance Learning-the ability to train and teach from remote sites using computers- is increasingly becoming more popular at the Defence Department, official said. This trend, additionally, is resulting in growing number of partnerships between government agencies and industry suppliers-joint ventures aimed at developing new solutions to the challenges of creating classrooms in cyberspace.”¹⁰

⁹ Deborah A, Schreiber, Berge ZL, Distance Training- How Innovative Organizations and Using Technology to Maximize Learning and Meet Business Objectives, Jossey-Bass Publishers, San Francisco, 1998, p. 43

¹⁰ National Defense, Military Tunes to Virtual Classroom, American Defense Preparedness Association, Nov 1999, Vol.84, Issue 552, p.65

The American military forces have made significant strides in the field of DL. General Reimer, the Chief of Staff of the Army (CSA) approved the concept plan for The Army Distance Learning Program (TADLP) on 19 April 1996. TADLP provides the Army with overarching long-range programming, planning, funding and acquisition strategy necessary for DL to become a pillar of Army training. The US Army's plan is that DL would be fully integrated into the training schemes by early 2001. The reports received are positive, as some courses are already available and on-line as others are currently being developed. In addition, the Secretary of the Army announced in July 2000 a \$600 million initiative to help soldiers complete college "any time, any place, anywhere they can take their laptop."¹¹

The Air Command and Staff College DL Program was established in 1948 to provide correspondence courses to officers unable to attend the residential courses. The Air Force offers many courses through the Air Command and Staff College as well as courses that it hopes to offer to military families as part of the expansion of the program. The Navy and the Marines were also developing DL strategies until the initiative called Advanced Distributive Learning (ADL) became a funded reality. Its aim of making learning available to the total force would create an open forum for broader collaboration between defence, federal agencies, technology suppliers, private business and national workforces.

¹¹ Department of Defense, Pointer View, Whashington , 14 July 2000.

It is expected that 30 percent of the current costs for academic upgrading could be saved through ADL.

The US Marine Corps has developed a non-resident alternative to its professional development program. Majors in the Marine Corps have the option of taking a ten-month residential course or accessing the non-resident program. The non-resident program consists of nine courses to be completed in a period of eighteen months to five years. The program, based on a curriculum tested against clear criteria and performance standards, offers further flexibility as to the completion through distance course material obtained by mail, attendance at seminars during nights or weekends or a combination of course by mail and seminars. On completion of the course requirement (or seminar), Marines must take a series of multiple-choice exams to validate the learning experience.

CHAPTER 3 - FACTORS FOR DL STRATEGY

The Canadian military system has been unable to come to terms with Distance Learning (DL) due principally to its inability to champion such a cause. Reductions in the number of personnel required to perform core functions have resulted in the CF being unable to afford the resources needed to develop the strategic planning required by DL.

Notwithstanding, the military system is currently in a position where DL can no longer be avoided or ignored. Consequently, the leadership of the CF is presently attempting to determine how best to access the DL market. Other factors, also recognised as educational systemic symptoms of malaise, have limited the ability of the CF to achieve DL. Staff turnover, continued changes in technology, shortage of personnel, and the development of training systems have impeded the advancements in DL.

An instructional strategy, championed by the Canadian Defence Academy which is now being charged with officer professional development, has the potential to produce synergies that could enhance the value of the training and the effect of that training on the trainees. It is essential, therefore, to adopt a strategic approach that has the capability of launching the Canadian Forces College (CFC) into the modern DL era. CFC does not have the resources necessary to implement and sustain a DL program. A sustainable strategy would support effectively the decision-making process in a rapidly expanding field where many different technologies are accessible and tend to complicate the decision making process. Furthermore, an instructional strategy must also be based on a systemic approach that considers factors supporting the learner's needs in the delivery of training rather than the establishment of delivery methods: "learning is more correctly attributable to well-orchestrated design strategies than to the inherent superiority of various media."¹² Using the needs of the organisation to achieve this will enhance the value of the training.

In order to proceed with a significant change in professional development the CF must develop an appropriate strategy. “The essence of strategy formulation is an assessment of whether an organisation is doing the right thing and how it can be more effective in what it does.”¹³ Therefore, the instructional strategy must address and consider the behavioural, cultural and political forces at play in the CF as DL has the potential to change significantly the traditional approach the CF has utilised to train and develop professionally its personnel. These forces will be identified in the factors to be considered with respect to DL, and more specifically, considered and examined with respect to their influence on professional development. The assessment of these factors will be used to examine two options of delivery for the Command and Staff Course and establish the most efficient methodology.

Professional Development Structure

Among the CF’s major strengths is its organisational culture. The unique nature of the military is based, in part, on the fact that it is clearly an organisation that is internally driven and controlled. It is, however, significantly influenced by society’s changes and evolution. Paramount within the CF is its need to train continually and this remains one of its top priorities. In the military’s recent history, this need has become especially obvious to the Canadian public. Consequently, the CF has reacted by attempting to enhance the military leadership by improving and increasing training.

¹² Anne Bednar, Ernest Burkman et al. Instructional Message Design - Principles from the Behavioral and Cognitive Sciences, Educational Technology Publications, New Jersey, 1993, p.192.

¹³ David FR. Concepts of Strategic Management. Sixth Edition, Prentice Hall Upper Saddle River, New Jersey,

These attempts have resulted in the generation and implementation of a number of initiatives. Evident in these initiatives is the emphasis being placed on professional development, secondary only to operational-type training. This subtle shift in emphasis of priorities underscores the CF's realisation that enhanced professional development has been recognised as the tool that will prepare today's military to deal effectively with future challenges. It addresses the need for increased ability to adapt to change, as the development of critical thinking can be achieved through the broadening of knowledge and the expansion of the mind.

Professional development performance orientation directs that all instruction focus on essential skills, knowledge, and attitudes required to meet operational requirements. In order to attain an appropriate level of competence, the CF is structured by rank and Military Occupation (MOC). The MOC is further divided into sub-set specifications for both officers and for Non-Commissioned Members (NCMs). These specifications outline the organizational requirements for certain skills and knowledge to be performed at certain ranks in certain occupations. They are defined as Occupational Specification and Common Job Requirements. Occupational Specification are the specific duties and tasks that officers are required to perform as detailed in each of their respective occupational specifications. Common Job requirements are the standards that apply to all officers regardless of occupation or environmental affiliation. These common requirements are defined under the headings: comprehension and judgement, training expectations, responsibility (for resources, services, discipline and fitness) as

they apply under different working conditions and in light of special requirements (medical condition, language, security clearance and education).

The specifications outline the standards to be used and will define the standards that are expected to be attained through DL. The general specifications are those specifications that relate to the military requirements to be performed at a certain rank, whereas the occupational specifications are those specifications that are required to perform the functions of an occupation. The Officer's professional development system includes the qualification standards required for each rank. These are referred to as Officer General Specifications (OGS).

These structures are well established in the CF and can be relied upon to establish those benchmarks to which the DL experience must attain. Using the established specifications, the DL process can accurately assess whether or not an approach will attain the required skill/knowledge. The specifications can also be used to establish the content of what DL is to deliver. The skills and knowledge required must be the basis to the modularization of the learning process, as DL may be achievable for some parts of the specifications but not for others. The specification required by the military occupational structure forms the basis for the training goal. These goals must be taken into consideration when deciding if a specific course or training event can be delivered by distance or if classroom time is preferable. Once it is determined that distance learning can be considered to achieve certain qualification standards, the unique educational

characteristics of each technology can be matched to these standards to ensure teaching requirements are achieved.

Because the basis of military training are sets of knowledge and skills it has been recognized by authors such as Bates that: “When preparing for decisions about technology use, it is also useful to make a distinction between knowledge and skills. Olson and Bruner (1974) argue that learning involves two distinct aspects: firstly, acquiring knowledge of facts, principles, ideas, concepts, events, relationships, rules and laws; secondly, using or working on that knowledge to develop skills.”¹⁴ It has to be determined if the knowledge can be transmitted on paper or if motion (such as video presentation) is required. Technology is currently developing at a rate such that it will soon be difficult to find a better method of delivery of material than that which is reliant on a computer assisted delivery system.

The instructional system that exists in the CF is currently a mandatory system. All members of the CF must undergo pre-determined training at specific times in their career. Career courses are mandatory, while certain other qualifications may be attained through a variety of different means; for example, language proficiency can be attained through the use of language labs on someone’s own time. The advantage of the CF’s instructional system is that it has a captive audience and a DL system would address the needs of a definite, easily determined, number of learners. This factor would consequently have a positive effect on the decision-making process, as there are only so

14 Bates AW, Technology Open Learning and Distance Education, Routledge Publisher, New York, 1995, p.43

many military members in the CF and therefore, a predictable number of participants for a certain type of training. However, even though the possibility of allowing a percentage of outside learners to participate exists, this factor cannot form part of the decision to provide DL. It must, instead, be relegated to a nice-to-have potential source of income to help sustain the program. Some initiatives of this kind have already been exploited and military members of other countries, as well as civilians, are participating in military courses.

The aforementioned framework is the basis for determining the training and instruction and content of courses. It is evident to the military training system what needs to be instructed and what skills and knowledge must be obtained if personnel are to be able to carry on competently and achieve prerequisite training to meet the demands (quality) for higher ranks. This characterises the factor of professional structure. Even though there are indications that recognised phases of professional development may be amended and that the creation of a Canadian Defence Academy may affect the delivery of the CF professional development, the requirement for qualifications remains and as such, changes would only affect content.

Cost

In difficult financial times, concerns regarding cost will inevitably affect any decision-making process. As a result, appropriate analysis of costs is essential to make an informed decision on whether or not to invest in an instructional technology and which one to choose if this is the preferred option. To determine options, consideration

must be given to fixed costs, variable costs, and average costs. Consideration of marginal costs which are used to determine the effect of increasing or reducing activities associated with a particular technology, although an important aspect of the decision-making process, will not form part of the strategic decision to enter the field of DL.

Fixed costs are those costs that do not change with production while variable costs do. The British Open University reported (1985) fixed costs of eighty to eighty-five percent. High fixed costs require a high number of learners to ensure average costs are minimised. “Some technologies have much higher average production costs than others for developing or producing one hour of study material. Table 3.1 (adapted from Sparkes, 1984 foundat Annex A) reflects the ratio of preparation and production costs associated with various media in producing one hour of teaching material.”¹⁵ A high-end interactive computer-controlled video disc can cost upwards of 100 times a standard lecture.

There are, consequently, different parameters for fixed and variable costs. One relates to courses and material and the other to students. For example, the fixed cost of a TV-produced course include infrastructure, staff requirements, and production costs, whereas variable costs are the number of courses produced. Once a course is produced, the cost of production remains fixed and the distribution costs are variables and depend on the number of students. It is, therefore, essential to examine each method of delivery separately when making the tactical choice as to which technology is more cost effective.

¹⁵ Ibid, p.39

However, while costs must be taken into consideration when making the decision to deliver learning at a distance, it must be realized that savings regarding training costs cannot be the major deciding factor.

Costs for DL vary significantly depending on the choice of delivery method. “Wagner (1982) defines average cost function as: the total cost function divided by the units of output produced.”¹⁶ One formula to establish cost per student per contact hour, commonly adopted by international agencies is:

$$“ \$ = \frac{t}{h \times n} ”$$

where \$ = the cost per student contact hour

t = the total costs of materials (text or program etc.), including overheads, production and delivery

h = the average number of hours spent studying those materials per student

n = the number of students studying the material over the life of the course.”¹⁷

This formula allows consideration of total costs to deliver a course, number of students and type spent by each student studying the subject to be factored into the cost of DL. It provides the decision-making process with an evaluation of the relative value of the course in proportion to the content of the course. The formula considers the variation

¹⁶ Ibid p.40

¹⁷ Ibid p.41

that exists between technologies, as it uses the total cost (different for each medium) as the number to determine the cost per student contact hour.

The current costs of conducting the CSC was established by a firm of consultants using a system called BNH Expert Software. It was calculated to be \$11,664,265. These costs include the costs associated with the residential course and include current staff requirement, meals, lodging and travel as well as other costs in material and lecture fees etc. as detailed at Annex B. These costs are accepted as the actual amount to maintain the status quo and operate at current average capacity (88 students does not include foreign students attending on cost recovery basis) of the college.

Support

The factor of support, in the decision to conduct training or courses through DL must also be considered necessary. There are two aspects to support that are necessary to consider. The support to the process and the support to the learners. Although the system and its design may indicate to Commanders that certain type of training or professional development may or should be delivered in a certain way, it is still necessary to ensure their support is garnered for the delivery chosen. Financial support, for example, to units is necessary to ensure facilities, equipment and/or software and technical support are available. This type of support may be more critical at the onset of a DL program, but, the sustainment factor with regard to facilities is also very important. After a specific DL program has been installed, Commanders would then have to build into their budgetary planning, requirements for sufficient funds for the support of this training.

The availability of resources needed to train those personnel requiring training is also crucial. The current state of the CF does not offer training and development to all military members. It must also be sought at a centralised location where significant costs associated with travel and attendance can, at times, become prohibitive. In addition to the cost, the time required to attend and attain the training is considered to be non-productive as personnel must leave their usual duties and be absent for specific periods of time. This non-availability to work, consequently, is factored into the affordability of the training or development session.

In addition, a significant shift in mindset must occur in order for military members to be allowed to absent themselves from their ordinary place of duty to pursue training. As well, military members must be able and disciplined enough to separate daily routine from training. Having to walk physically to a different area than their usual office, or, studying at home would contribute to an easier transition to DL but may not be necessary depending on the media chosen to deliver the training. To that end, Commanders and Superiors will have to understand the implication of DL training. An extensive internal communication plan will have to be developed and used to ensure all personnel responsible for the supervision of others, understand and accept the DL system and provide to learners the level of support required to perform the training.

Accessibility

While support for DL as an instructional tool is essential, support to participants (learners) in the DL process must also be guaranteed and built into the system. The factor of accessibility answers the question of who will access the training and where and how this training will take place. As such, support is one of the most significant hurdles to DL due to significant reductions in personnel. These reductions can result in staffing levels being so critically depleted that when an individual is absent from his/her place of employment, the work simply does not get done. With a level of manning that offers no redundancy, workdays are filled with the performance of essential tasks and very little time is available, during working hours, for professional development. The only way military members are able to access professional development training (as currently delivered) is by attending courses and training sessions normally located elsewhere than the normal place of duty and at a considerable distance from their home.

a) Learners: As DL is designed to offer flexibility to access training, accessibility must remain the dominant overriding factor in a DL system. It is expected that those who would principally utilize distance learning/training would be those individuals who normally could not be spared from their current job to attend conventional training. The next greatest users would be those individuals who could only be allowed to absent themselves for a short period of time. Those CF members interested in expanding their knowledge and skills in areas outside their normal occupation and rank would be the third largest users. As DL could provide accessible training to all of these groups, the DL system could assist in ensuring career courses are available while

enhancing other CF members' ability to increase their professional expertise and broaden their perspectives.

As well, DL can be made available to those who would not otherwise have chosen to attain certain courses. DL options would greatly benefit the organization through the provision of qualifications to a majority instead of a minority of officers as is currently the case. Because military members are tasked to the maximum possible, they spend on average 40% of their time away from home and their unit of origin. Absences create added stress and pressure at a time when the CF is attempting to enhance the quality of life of their military members and their families. This enhancement centers around the CF helping members cope with the tempo of operations, separations, and training requirements. As a result, the military member is normally not inclined, in the current setting, to volunteer to attend any course or professional development session unless absolutely necessary or directed. DL options must, therefore, provide incentives for members to participate to the program through valuable recognition or rewards.

Some phases of professional development have been rationalised and personnel accept them as necessary "career courses". Unfortunately, these training requirements add to the level of stress as members are required to depart their homes and units with the understanding that future promotion depends on successfully completing these courses. As a result, the manner in which training is delivered must be re-examined in order to facilitate learning while reducing the level of stress, rather than exacerbating it. In short, the delivery of training must motivate the member to want to access the training while it

enhances their quality of life. DL offers many varied options of learning delivery and would greatly benefit those military members who have deployed frequently and are feeling the stress of these absences.

Although the target market is not currently defined, the options of when and where are directly related to the tactical decision to apply one DL technology vice another. The question of accessibility could address the element of when and where, but the decision to conduct training or professional development in a certain fashion will become the driving force behind the delivery decision.

b.) Technology: As early as 1985, conferences concerning technology and its relation to learning were held. At that time technology, designed to further instructional requirements, was limited and expensive. Only eight years later CEOs of companies and managers of Crown corporations were invited from across Canada to attend a satellite-delivered videoconference. A review of this technology, coupled with its unusual delivery methods, concluded that neither was good nor bad in themselves and that they could only be assessed based on the manner in which they were utilised. “We need to understand the relative strengths and weaknesses of different technologies and the requirements for their effective use in widening access or meeting the needs of learners in a flexible or open manner.”¹⁸ As attractive as new technology can be, its’ application to learning must be tempered and designed to meet the requirements of the learning process in order to ensure that the anticipated result is not sacrificed simply for the sake of using

¹⁸ Ibid p.43

a modern delivery method.

Notwithstanding the rapid growth of technology clearly has the potential to revolutionise the learning experience. Many companies and universities have developed developmental and educational DL systems. “There are now examples of thriving open and distance education initiatives operating across all subject areas, at all academic levels and in every continent.”¹⁹ Both the Open Learning and Distance Education concepts are now often used to provide alternative means of quality education. Open learning is the provision of education in a flexible manner, built around the learner’s life and priorities, while, distance education is a flexible means by which learners can access teaching material at their own time and at a location of their choice. It must be noted that open learning may include distance education, as well as include mixes of independent study and face-to-face teaching. As different as these concepts may be, they both provide a realistic and effective alternative to classroom instruction.

Unlike the earlier beliefs of Clark (1983), who suggested that all technologies were neutral, DL has the potential to revolutionize learning by virtue of its flexibility as demonstrated by Bates (1995) who demonstrated that there are significant educational and operational differences between modern technologies. The evolution of the means available, i.e. print, radio, audio cassettes, educational Television broadcast, pre-recorded Television, video cassettes, computer-based learning and multi-media, supports Bates’ (1995) contention that although the what is to be learned, the how and where must be the dominant elements with respect to choice. This was demonstrated by Moore and

Thompson (1990) who concentrated on designing the learning experience rather than testing the technology. Their conclusion clearly indicates that the opportunities are endless. If the qualification standards are well established, there will be, most conclusively, numerous and very effective options to deliver the material and teach the skills or pass on the knowledge in an efficient manner.

c.) Location: The question of location is also significant. The CF is attempting to enhance the military members' quality of life. To expect those military members to take training courses in addition to normal working hours, at home would not contribute to the quality of life. However, to offer attractive, flexible options for those who chose to take that training at home, during what would normally be their working hours, not only could enhance their quality of life but would, in addition, send a strong corporate signal that we trust our service personnel and value their retention to the point of offering a professional DL system, available as required at their home.

Currently, major bases²⁰ throughout the CF have established and accommodated what is referred to as learning centres. This approach could be broadened to include the use of classrooms equipped with computers located at every major base. This accessibility would offer a site on the base, that would be separate from the office and which would offer the member a place where he could access the training facility during working hours. This system would also offer the learners more current technology, as the

¹⁹ Chang T.M. *Distance Learning - On the Design of an open University*, Nijhoff Publishing, London, 1993, p.39

²⁰ Halifax, Greenwood, Valcartier, Bagotville, Ottawa, Trenton, Borden, Winnipeg, Edmonton, Calgary, Comox and Esquimalt currently operate learning centres or have video-conferencing capabilities.

personnel of information technology sections would maintain the equipment and software. This expertise would allow the learning centers to more readily adapt to any course requirement at no additional expense to the military member. “Access to and availability of equipment is likely to be a powerful discriminator for accessing the appropriateness of a particular technology for distance learners; if learners cannot get the teaching, then other factors, such as design and interactivity, become relevant.”²¹ Other considerations are also pertinent. Although the target market is not currently defined, the options of when and where are directly related to the tactical decision to apply a DL technology over another. The question of accessibility addresses the element of when and where, but the decisions to conduct training or professional development in certain ways become the driving force behind the delivery decision. As well, the stress of concurrent operational tours added to training requirements could be reduced by taking courses or required training at home, at their home unit or on deployment while achieving the required qualification without having to, once again, leave home to attend a career course.

Resistance to change must also be taken into considerations when well-established conventions are changed. New ways of conducting training can effectively be resisted by both the learners and by the senior leadership. The credibility of the learning experience must be enhanced, through marketing, to show motivating and stimulating training that is convenient and timely for those participating in the training. This element of resistance,

²¹ Bates AW, Technology, Open Learning and Distance Education, Routledge, New York, 1995, p.37.

however, is considered to be minor in nature as it can be defused once a quality program is submitted for approval.

CHAPTER 4 - DISTANCE LEARNING OPTIONS

The CFC has committed to the development of a DL system. It recognizes the need to enter the technological age of education. It is already engaged in the development of modules however the complete design of a CSC curriculum has not yet been addressed. Many options are possible but two specific delivery methods will be examined herein. The first is a delivery of CSC by DL concurrent with the existing course conducted in Toronto every year. The second is a course to be conducted as a self-paced program. The CSC content is composed of 43 skills and 219 sets of knowledge estimated to represent the competencies required to progress beyond the rank

of Lieutenant Colonel (LCol). Recent attempts to update and improve the professional development system have had impacts on the curricula at CFC. The current situation creates instability regarding the nature of the content of the course currently being taught. This, in turn, has created a situation which will require confirmation and longevity before DL could be implemented.

The residential course is currently delivered through a series of lectures, discussions, case studies, communication skills assessments and written paper submissions. Three terms are conducted in a joint format where students of all elements and different occupations are grouped in study groups of nine students for optimum performance and interaction. The eleven-month residential course is currently delivered at the CFC Toronto to an average of 88 Canadian students of the rank of major and twenty foreign students from a variety of countries. Students are chosen by a selection board based on potential for future promotion.

There has been, on average, 390 promotions to major per year in the last ten years to maintain the 3150 major positions in the CF. As well, there are 945 LCol positions in the CF and on average 123 majors are promoted every year to fill these positions. Therefore, an average of 14 percent of majors attend CFC and acquire the qualification required to progress further which equates to only 59 percent of LCol's being considered CSC qualified. The limited number of CSC qualified LCol's is the result of financial and physical limitations imposed on CFC by the overall fiscal restraints of the CF. Most occupations give credit, on merit boards, to individuals who are CSC qualified.

However, attrition and the need to promote often result in the promotion of individuals who have not yet had the opportunity to attend CFC. This reality does not meet the intent of the professional development system and must be counter balanced by a credible option to obtain the appropriate qualification for all senior officers.

Concurrent course

The first option involves a DL concept that would be delivered simultaneously to the existing in-house CSC. Lectures would be broadcast through video conferencing and questions could be posed through the Internet in the form of a chat line (simultaneously or at a later date). Discussions conducted in study groups could be duplicated through a chat line or an asynchronous database. Discussions can be conducted through software allowing DL participants to submit input, question selected participants and challenge each other i.e. discuss: albeit through e-mail and on their own time. While these asynchronous discussions do not have to take place simultaneously they would have to take place the same day, or, before the next discussion (time to be determined by a schedule) to allow students to keep pace with the residential course (schedule of the next day potentially bringing new lectures/assignments or discussions).

Exercise tutorials could be conducted through a groupware system, (such as Lotus Notes) that allows interface between different databases as well as communication between participants through the Internet. In the form of military exercise simulation, these can be conducted by remote but attendance at a final exercise would validate the overall learning experience. The DL curriculum should clearly emphasize the goals to be

attained and link the learning experience of lectures and discussions to the overarching goal of operating as a commander at the operational level. Well-focused goals would ensure that the students concentrate on the elements that need to be learned to succeed during the final exercise. During their attendance at the final exercise, the participants could be assessed on their verbal communication skills as well as their organizational skills. Written assignments would be required to demonstrate an ability to research, as well as assess written communication. The achievement of the pre-selected standard could be measured by these assignments or a multiple choice exam as required by the Marines.

This option would ensure that the professional development structure was respected. The qualification standards and the content of the course in residence would be followed. This option would give the CFC the flexibility to conform to or update the content of lessons as required. As subjects are added or deleted from the residential program, the DL program content similarly and simultaneously be amended. This option also includes a short internship to be attended at CFC for the performance of practical exercises.

The cost of a DL program running simultaneously with the residential program would consist of start up costs as well as delivery and recurring costs. Start up costs for such a program was established by BNH Expert Software (a firm recently hired by CFC to evaluate such an initiative) to be \$15,794,000 in development and computer equipment as well as the expansion of the residence for quartering purposes. It calculated recurring

costs of a concurrent DL program delivered in addition to a residential program at \$8,230,000. The total costs established to deliver a DL program while maintain the current program was calculated to be \$18,959,000, that is \$7,295,000 (see Annex B) more than the current expenses incurred in the conduct of the residential course. The costs of ATL credits is not accounted for but would equate to non-productivity of the equivalent number of officers that participate in this DL.

The support to the process, required by this option, has been accounted for in the start up cost. It also provides for recurring costs of computer equipment for students. As most major bases are equipped or are in the process of upgrading their teleconferencing capabilities, it is assumed that coordination with local requirements is the only additional element that was not included in the cost but would consist of support provided by the individual's home unit. In addition, support staff would be required at the college to support this initiative. This support was factored into the costs; however, the demand for staff is immediate as well as significant due to the simultaneous nature of the program.

This commitment translates into a requirement to support the learners. The individuals participating in a DL program, while placed on ATL, would be replaced in the work place and would attend the DL program full-time. This option would alleviate the burden of taking the officer away, which would require acceptance and understanding on the part of those who remain behind to accept additional/increased workload.

The accessibility factor is important when evaluating a DL program. A CSC DL program that entails a two-week residency could realize a student population of 300 officers (figure used by the DNH consultant firm for costing). While this number of students could provide training for the majority of officers promoted to major every year, it would also create a significant manning problem for the CF, as most newly promoted majors would be taken out of the workforce for a period of ten to eleven months. This loss of senior officer manpower could be justified, in part, through savings in TD as qualifications could be obtained without the need for these individuals to leave their home base. In addition, student's quality of life would be enhanced as, they could obtain a qualifications from their home.

With respect to access to technology, cost would be directly related to the technology chosen by CFC to conduct the course. Video conferencing, laptop computers, Palm Pilots and multi-media capabilities are simple to operate; however, they require maintenance and replacement at regular intervals. It is assumed that bases, which already possess most of these assets, would continue to maintain them and would allow officers to use them for a DL program delivery (considering that CFC would provide for the cost of start up of laptops or other technologically compatible technology). Consequently, while technological opportunities could be endless, these opportunities could be limited by the amount of support provided by home units and CFC.

Non-Concurrent course

This option is viewed as a self-paced program that relies on, voluntary attendance to a complete DL program. Officers of the rank of major could register to attend CFC by DL. Once accepted, the officers would take DL courses on their own time. This implies that the content of CSC would be stable enough to be modularized and that each course would be pre-scheduled and delivered at set times according to a pre-set sequence. Officers would be free to take courses when the courses were offered and when they were available. The delivery of a course would follow strict guidelines and once an officer committed to taking a course, the consequence of withdrawal would affect the officer's career through the merit system. The college should also consider granting equivalent credits to those who have attended courses that equate to the CSC curriculum (for example law of armed conflicts, ethics, etc.). Participation in discussions, conducted through asynchronous methods, could assess an individual's quality of intervention, and, assignments could evaluate the success of the student as well as assess the value of the training provided.

The design of the course would be of great importance to attain maximum flexibility for the learners and the staff. Orientation at the beginning as well as continuous support during course would be essential. Staff would be required to guide students through their studies, more as monitors and mentors, than directors. Officers, serving anywhere, could be hired (and should be paid) as mentors to students to assist them through their studies in the same way that open university such as Athabasca University hires coaches to guide workgroups, on an as required basis. These qualified mentors should be CSC graduates with operational experience. They would not be

required to leave their current employment and would, like the students, take on mentoring/guiding based on their availability.

Establishing of an open concept CSC would be similar to the concept of open universities. They require greater administrative support and coordinating staff; meanwhile, they require less full-time instructional staff as mentors because they are hired on contract of service. Facilities are not required, as an open college concept would only require office space for support/coordinating staff. In the same vein exercises could be simulated. A groupware allowing for input from participants capable of being correlated and submitted to the mentor for review, or, to a computer simulation system would facilitate the participation in exercise by DL.

This option must satisfy the factor professional development structure, as the content of a DL course would rest completely on the qualification requirement of the OGS. The lectures transmitted through a multimedia system or downloaded from the Internet would be potentially the same or better than those presented to the residential course. However, the question period would have to be addressed through a discussion database which would also comply with the requirements of the specifications of the subject course. The content of the DL course could subsequently be amended as easily as the residential course, and as responsively. The modularized curriculum would allow for elective choices of courses and would increase curriculum flexibility, thereby allowing students to concentrate on courses more specifically related to their element or MOC or

those courses of interest to them. This flexibility would clearly increase motivation to take DL courses rather than attend a residential equivalent.

The cost of a DL system would be comprised of start up costs and operating costs to be added to the current operating costs of the college. The firm DNH Expert, hired by CFC, evaluated the start up cost of a DL program at \$7,860,000. This includes program development, laptop computers, and additional computer support for administrative staff. It demonstrated an operating cost of \$8,570,065.²² This included program upgrade, civilian staff and base support. This totaled to \$16,430,065 for the first year of a DL program operation. It is estimated that the recurring costs of an established DL would rely on the residential delivery for much of its material and would incur \$8,570,065 per year in operating costs. This, added to the current cost of operation of CFC of \$11,664,265 would result in a total cost of \$16,430,065 per year to conduct both the residential and the DL programs. Considering the significant increase in the number of graduates, the cost to train an individual would be considerably reduced.

The support to the process required would be minimal from the perspective of an individual's unit. Access to a computer with Internet capability (or other digital equipment capable of accessing the Internet) or possibly a multimedia conference room (which are now becoming available at all major bases) would be necessary. The amount of time spent attending this type of course during a workday would be minimal. The

²² It is debatable that laptop computers are required when Palm Pilot, hand-held devices compatible to most PCs could carry the DL program and be an attractive portable advantage and contribute to motivation to participate to a DL program

ability to participate in DL learning during working hours would depend on an individual's workload and the benevolence of their superiors. The ability to achieve the standard of a DL course could, therefore, be attained through individual effort after working hours and depend solely on Internet access and the most appropriate choice of technology. It could consequently be taken anywhere at almost any time.

As this type of course would be available to all majors, so would the ability to achieve the CSC qualification. Those officers who chose to take the qualification by DL, due to the fact that they were not selected for the residential course, or, because they chose to do it by DL for personal reasons, could take from two to four years to complete the program. The increased flexibility would allow qualifying officers to take the course at any time and continue their studies regardless of the changing circumstances of their work or life. The more support a superior gave an officer, the more successful such a program would be. It would truly enhance the members' quality of life even though it is performed in addition to an individual's normal workload.

Accessibility to course material and mentors, through the Internet, is clearly achievable. The technological capability exists and an individual's requirement for technical assistance could easily be coordinated at a unit or from the college through the auspices of a temporary loan of equipment established within an individual's home. The actual course content could be distributed by the college and instructions provided regarding curriculum, delivery, expectations, deadlines and contacts for the course. Mailed material or downloadable files could be distributed to students and therefore

increase the accessibility to the material as well as increase user skills in the application of the technology.

Comparison of options

Both options of concurrent and non-concurrent DL programs would follow a set curriculum. Both methods of delivery would be based on the residential curriculum which would conform to the requirements of the qualification standard required by the OGS. Therefore the qualification expected from the course could be obtained regardless of the method of delivery. As previously mentioned the delivery method could be adapted to the overall educational strategy if the concepts were well planned. Therefore, the professional development factor is not determinant to the delivery method of CSC by DL in this context. However, the stability of the curriculum and its content is essential to the success of a DL program.

The cost factor appears to favor the option whereby no quartering is required. The start up cost of a concurrent option is \$15M, whereas the start up cost of a program that is exclusively DL is evaluated at \$7.8M. Recurring costs are also significantly less, as there would be no travel expenses and less permanent staff maintained, within the college establishment to support maintain the DL program.

The support factor is considered a significant element in both options. A concurrent program demands that officers be detached, replaced and allowed to study while others accept additional workloads in order to compensate for the void created by a

member participating in a concurrent program. A significant amount of support, on the part of a unit affected, would be required to sustain these absences. In addition, officers studying at home base would require technical support as well as additional personnel administrative support. The non-concurrent program also requires support from the member's unit; however, it is less onerous. A program taken when convenient could be coordinated with the unit's operational commitments. In addition, there would be a negligible reduction in productivity as members participating in a non-concurrent DL courses would be doing so almost exclusively at their own pace and possibly on their own time.

The technological aspect of support will be directly related to the method of delivery chosen. The technical support at the home unit should already exist and be compatible with the facilities found on most bases. The technical staff required to support the program was factored into the cost calculation. A staff of computer technicians, expert in the methods of delivery, would be required to support the program. The requirement for direct support decreases when officers become familiar with the delivery of the program.

The concurrent DL program must be delivered at a certain time and only to a limited number of officers. A non-concurrent option, however, could be delivered to considerably more officers and would offer more flexibility. Flexibility is, consequently, increased not only for the learners who can take courses based on their personal availability but also for the college which would not have to hire (obtain) as many

permanent staff but instead could hire qualified mentors/instructors on an as required basis, based on enrollment. Further, it is also more portable for learners due to its Internet base or Palm Pilot base.

CONCLUSION

In order to address the more significant problems identified by the Somalia Inquiry and the Dixon Commission, the Minister of National Defence encouraged changes which led to over three hundred institutional reforms. Based on these encouraged reforms, the CF has adopted an official approach wherein it is finding ways to re-invest in its people through the enhancement of their quality of life. Practices adopted by the armed forces of other countries, including associated literature, revealed that DL is a viable process through which the CF could enhance the quality of life of its

members while remaining a combat ready force. What was required was to determine what DL process could best meet the organization's needs.

The need for better-trained officers cannot be neglected nor can the current shortage of personnel which presently requires decisive prioritizing of assignments/tasks. Better-trained officers perform in a much more efficient manner as a result of having been given the proper tools, skills and knowledge. The professional development structure of the CF captures the essence of the qualifications required to perform a job at a certain rank. Therefore, design of a DL program, at whatever level, must comply with the standards established in the OGS and must apply the standard expected through this system.

Financial constraints and increasing demands on scarce departmental dollars make it extremely difficult to plan any new ventures. Therefore, the factor cost must be considered. The cost of designing a system as well as maintaining the system in the future are important. It must be realized, however, that innovation in the domain of training cannot come without funding and to expect any development of the CSC through DL, or otherwise will necessitate a considerable budget increase for CFC. In order to train more officers, the CF must spend more money, being cognizant of the fact that the choice must reflect the CF's current financial constraints and must also ensure the most appropriate disbursement of funds with respect to DL.

Any DL program requires commitment on the part of the student. Whether the course is concurrent or non-concurrent, it will require support. Support to the learner will consist of technological and personal assistance to ensure success. Additionally, the greater the support offered by superiors the greater the inclination for subordinates to attempt a DL program. The course, therefore, must be flexible enough to ensure that a maximum number of officers are able to participate and are able to access it at any time in a stable and reliable environment.

Therefore, an exclusively delivered non-concurrent DL program from the CSC would fulfill all of these requirements. Following the pre-established professional development structure, it offers the content required to a maximum number of officers. It can be taken anywhere by almost anyone. It would be delivered through the Internet or pre-package digital delivery system with minimum of technical support. CSC qualified and operationally experienced senior officers could be hired on an 'as required basis'. The minimum infrastructure expenses to the college would only be for developmental and administrative coordination staff.

An accessible course, at minimum cost, available to the learner at their convenience is, therefore, a practical and effective alternative to the current CSC course. Such a DL program would offer considerable advantages to CF members by allowing them to attend a course they would not otherwise be able to attain, from the comfort of their own home. Consequently, qualifications that would benefit both the member and

the CF would be readily available to those wishing to avail themselves of this opportunity.

Annex A

Table 3.1 Production costs (including overhead) for one hour of material²³

<u>Medium</u>	<u>Production cost</u>
Face-to face lecture	1 unit
Audio cassette /	2 units

²³ Bates AW . Technology, Open Learning and Distance Education , New York, Routledge Publishing, 1997 p.39.

radio/teleconference	
Televised lecture	2-5 units
Computer-mediated communication	2-5 units
Print	2-10 units
High quality TV program	20-50 units
Pre-programmed computer based learning	20-50 units
Computer-controlled video disc	50-100 units

Annex B - Costs

	Current Residential Program	Concurrent DL	Non-concurrent DL
Military Staff - Regular	\$ 5,206,805	\$ 8,635,445	\$ 9,547,315
Military Staff - Reserve	\$ 166,100	\$ 166,100	\$ 166,100
Other (meals, lodging, travel & relocation)	\$ 1,590,960	\$ 1,107,600	\$ 1,590,960
Course upgrading	N/A	\$ 1,082,000	\$ 1,296,000

Laptop Computers	\$ 258,000	\$ 948,480	\$ 1,143,480
Civilian Personnel	\$ 1,103,760	\$ 1,331,460	\$ 1,331,460
Base Support	\$ 536,640	\$ 792,750	\$ 792,750
Field Study Exercise	\$ 300,000	\$ 664,560	0
Guests Speakers, COS, J1	\$ 1,204,000	\$ 2,134,500	Incl. in Res. Crse.costs
Guest Speakers Travel	\$ 500,000	\$ 886,500	Incl. in Res. Crse Costs
Facilities	\$ 644,000	\$ 647,780	N/A
Cosumables, Printing & translation	\$ 154,000	\$ 562,000	\$ 562,000
TOTAL	\$ 11,664,265	\$ 18,959,175	\$ 16,430,065

Note : Extract from “ Costs Analysis of Delivery Options for DP3A, DP3B and CSC Course.

- The concurrent and non-concurrent DL costings include the cost of the current residential program

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