Professional Military Learning

Next Generation PME in the New Zealand Defence Force

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2004 ROYAL NEW ZEALAND AIR FORCE FELLOW

AIR POWER DEVELOPMENT CENTRE
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About the Author

Squadron Leader Murray Simons joined the Royal New Zealand Air Force in 1990 after completing a Bachelor of Science in Psychology at Auckland University. He completed a number of tours in instructional, command and operational posts as a junior officer. Between postings he completed a Diploma of Teaching (Secondary) and a Master of Education at Canterbury University. During 2001–02 he served 12 months with the United Nations in the Middle East, working both in the field and in the Headquarters. Prior to, and during his operational deployment, Squadron Leader Simons studied towards a Master of Philosophy in Defence Studies by distance learning.

In 2003 he was posted to Canberra to complete the Australian Command and Staff Course where he obtained a Master of Management in Defence Studies. During 2004 he completed a Master of Arts in Strategy and Policy through the Australian Defence Force Academy. Squadron Leader Simons wrote this book as the RNZAF Visiting Fellow at the RAAF Air Power Development Centre. Squadron Leader Simons' next posting is to the New Zealand Defence Force Command and Staff College as a member of the Directing Staff. His wife Sandie is a secondary school teacher, and together they have two young children, Samuel and Ariana.

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Abbreviations and Glossary

ABCA American, British, Canadian, and Australian.

ACC Acquisition of Current Competency. Similar to RPL but usually involves testing or confirmation of ability, useful when a previous CLE or qualification is dated.

ACSC 1. Australian Command and Staff College. 2. Advanced Command and Staff College [UK]. 3. Air Command and Staff College [US].

ADC Australian Defence College. Includes CDSS, ACSC and ADFA.

ADF Australian Defence Force.

ADFA Australian Defence Force Academy.

ADL Advanced Distributed Learning is a collaborative effort between the US Government, industry and academia to establish a distributed learning (*qv*) environment permitting the interoperability of online learning tools and course content on a global scale. Governing body for SCORM.

ADO Australian Defence Organisation. Includes the Australian Defence Force and Australian Public Service.

Affective domain One of three divisions of learning. It covers the intangible subject of attitudes and values. It is the hardest to teach and assess.

AICC Aviation Industry CBT Committee. A standardisation system for e-Learning systems which became popular beyond the aviation industry but now replaced by SCORM.

ALE Adaptive Learning Environment. Intelligent (able to learn and improve) online learning systems individually tailoring to a student's preferred learning style and needs. It reflects a convergence of understanding between learning theory and computer science.

Andragogy The theory of teaching adults. First coined in 1833 as *Andragogik* by Alexander Kapp to describe Plato's teaching methods. Today the term is best known for the work by Malcolm Knowles.

Articulate, Articulation Using a qualification to gain entry to the next level of education.

Asynchronous Communication (teaching and learning) is delayed over time. This often involves a conversation thread where contributors reply hours or even days later. May involve e-mail conversations or bulletin board discussions. Overcomes large time zone difficulties. See also *synchronous*.

Avatar Computer generated virtual person, communicating on behalf of either a computer or a real person. Used to enhance communication by visually displaying non-verbal clues. Need not represent the actual person or a human at all, eg. Microsoft's snippet paperclip Help function. Used extensively in gaming, virtual chat rooms, and webcasts.

Baby Boomers The generation born in the two decades post World War II (1945–1960). Characterised by high degrees of collectivism and loyalty.

Blended learning The combining of e-Learning and face-to-face discussions within a course. Also referred to as 'clicks and mortar'.

CBA Competency Based Assessment. A system of assessment employing objective, measurable, outcome orientated testing. See also *CRT* and *NRT.*

CBT Computer Based Training.

CDSS Centre for Defence and Strategic Studies [Australia].

CLE Career Learning Experiences. The recognition of learning achieved in a workplace based on informal learning. Includes on-the-job experience.

Cognitive domain The *theory* aspect of learning, vice practical and attitudinal. From Bloom et al 1956. See also *psychomotor* and *affective*.

Constructivism An educational theory where learners discover facts and concepts by themselves so they can comprehend the knowledge in a way that suits their life experiences. It is learner-centric rather than information driven.

CRT Criteria Reference Testing. Performance is measured against clearly defined objectives. Grading is independent of other candidates. See also *NRT*.

CSC Command and Staff Course or College.

Curriculum From the Latin *currere* (to run) meaning the components of course of study. Sometimes used synonymously with syllabus (*qv*) but is more commonly a higher-level concept.

Cyborg A human–machine creature of the information age, from Cybernetic organism. Anyone with a mobile phone, PDA, or GPS receiver could be classified as a basic cyborg. 'Techno-soldiers' or 'wired soldiers' are more typical examples. May also include users of genetically modified steroids, hormones etc (wetware).

DA Defence Academy.

DARWARS [US] Defense Advanced Research Wars. A 'Training Superiority Program' seeking to transform military training by providing continuously-available, on-demand mission-level training for all forces at all echelons. See web site link in the Bibliography.

Deliverables Student products—written, oral or other (essays, research papers, speeches, web sites, etc). They can be formative (*qv*), summative (*qv*), or not assessed.

DFAT Department of Foreign Affairs and Trade [Australia]. See also *MFAT*.

Digital natives People who have grown up with computers and e-Learning.

Distance learning Denotes traditional paper-based courses where students receive and return readings, assignments and other course material via postal services. It is sometimes used to include e-Learning courses, particularly when a course is in transition between legacy and electronic systems.

Distributed learning Like distance learning (*qv*), this has multiple interpretations. To some it is the 'next generation' of e-Learning enhanced distance learning, while to others it is synonymous with blended learning (*qv*). An alternative interpretation is the multiple locations of the contributing teaching elements. For example, an Internet-based program involving modules from various geographically dispersed institutes. See also *ADL*.

DL 1. Distance learning (*qv*) 2. Distributed learning (*qv*).

DOMAIN Defence Online Management and Instruction Network. An ADF portal connecting blended learning courses available for ADO personnel.

DS Directing Staff. The academic (civil and military) staff at a Defence college.

(E) Equivalent. When following an Army rank it indicates all Service personnel holding the equivalent rank.

ECTS European Credit Transfer System. A standardised credit system for interchanging courses within European universities.

e-Learning Learning enabled or supported by the use of digital tools and content. It typically involves some form of interactivity, which may include online interaction between the learner and their teacher or peers. e-Learning opportunities are usually accessed via the Internet, though other technologies such as CD-ROM are also used in e-Learning. For more, see the discussion in Chapter 6.

e-moderators Those responsible for developing, delivering and assessing online learning.

Epistemic communities Knowledge-based transnational communities of experts sharing and discussing understanding of issues, problems and policies in a specified field.

ESDC European Security Defence College. An initiative to create a virtual Defence college by networking existing European military institutes.

Fade The decay of memory following training or education. It is a factor of relevance, application, recency, etc. Used to calculate maximum time before retraining is required.

Flexible delivery The ability to undertake study at both times and locations that suit the learner. Generally includes 24/7 access to online learning to fit in with work or other commitments.

Formative Assessment used to guide student improvement but not recorded in final course grades.

GCSP Geneva Centre for Security Policy.

Generation e An alternate title for Generation Y emphasising the impact the Internet and other electronic technologies are having, See also *digital natives* and *knowledge worker*.

Generation X Generally considered to be the cohort born 1960–1980; offspring of the Baby Boomer generation and grandchildren of the GI Generation. These are the emerging leaders of most militaries.

Generation Y Offspring of Generation X, born 1980–2000. These will be the dominate cohort on Tier 3 courses from 2015 and Tier 4 courses from about 2020. Many of their characteristics (especially their propensity toward technology), however, are evident in Generation X. See also *Generation e*, *digital natives* and *knowledge workers*.

GigaPOP **Giga**bit **P**oint **o**f **P**resence. A network access point supporting data transfer rates of at least 1 Gbps (Gigabytes per second) to high-speed networks such as I2 (*qv*). It represents one solution to current bandwidth problems on the Internet.

GII Global Information Infrastructure. A US concept of a network system supporting PME.

HCM Human Capital Management. Human Capital is a catchphrase used to convey the increased value of employees based on their education and training. HCM is a relatively new field of recording and developing an organisation's collective expertise.

Hypermedia A multimedia system in which related items of information are connected and can be presented together. Hyperlinks allow the user to connect directly to related information.

ICT Information and Communication Technologies.

Instructivism Traditional content-centric instruction or education where the instructor determines what is to be taught, how it is taught and when it has been learned. See also *constructivism*.

I2 Internet2, also known as Next Generation Internet (NGI). See also *GigaPOP*.

JPME Joint Professional Military Education. Military education which is both common and generic to all Services. Does not refer exclusively to teaching joint operations.

JSC Junior Staff Course.

JSCSC Joint Services Command and Staff College.

Knowledge economy An economy in which the generation of knowledge plays the predominant part in the creation and sustenance of wealth.

Knowledge management The collection of processes governing the creation, dissemination and utilisation of knowledge. It includes hard copy storage, such as libraries and archives, as well as electronic databases.

Knowledge worker The dominant worker in the information age. See P.F. Drucker, 'The Age of Social Transformation', *Atlantic Monthly*, 1994, pp. 53–80.

LCMS Learning Content Management System.

LMS Learning Management System.

Lurker A student who does not participate in discussions. In terms of e-Learning, they seldom, or never, contribute to online discussions but monitor other's contributions.

Metadata Data about data, eg. a library catalogue card that contains data about the nature and location of the data in the book, referred to by the card.

Metacognition The ability to reflect upon, understand, and control one's learning. From G. Schraw and R.S. Dennison, 'Assessing Metacognitive Awareness', *Contemporary Educational Psychology*, Vol. 19, No. 4, 1994, pp. 460–475.

MFAT Ministry of Foreign Affairs and Trade [NZ].

Module Used in this paper to identify a discrete course (or paper) representing approximately one-eighth of a master's degree.

MUD Multi User Domains. Examples include bulletin boards and chat rooms.

NQF National Qualifications Framework. A New Zealand–wide framework of unit standards and national qualifications across the broad spectrum of subjects which providers seek accreditation to offer. Governed by NZQA (*qv*).

NEBA National Effects-Based Approach.

NCW Network Centric Warfare. The use of Force structure and enabling technologies to provide flexible and adaptable response options in military operations.

NGI Next Generation Internet. See also *GigaPOP*.

NRT Norm (or Normative) Referenced Testing. Assessment where grades are awarded relative to other candidates, ie. ranking. Requires a large sample to be valid and often involves scaling (usually to a normalised bell curve). See also *CRT*.

NZDC New Zealand Defence College.

NZDDP New Zealand Defence Doctrine Publication.

NZDF New Zealand Defence Force.

NZQA New Zealand Qualifications Authority.

OECD Organisation for Economic Cooperation and Development

Paper Usually refers to an individual assignment submitted for assessment as part of a course, but in New Zealand refers to an entire course of study (usually one-eighth of a master's degree).

PDA Personal Digital Assistant. A palm-sized computer often combining Internet, GPS, mobile phone, digital camera, and docking with desktop computers.

PfP Partnership for Peace. This includes a consortium of Defence academies and Security Studies institutes, and is an international organisation dedicated to strengthening defence and military education and research through enhanced institutional and national cooperation. Currently, the PfP Consortium consists of more than 350 organisations based in 42 of the countries comprising the Euro-Atlantic Partnership Council (EAPC).

PME Professional Military Education. See also *JPME*.

PMD Professional Military Development. A term coined by the NZDF in 2004 to capture the structured development of officers both through PME and other learning opportunities.

PML Professional Military Learning.

Portal An initial web site allowing access to multiple related web sites.

Professional qualification A university degree made up partially with work experience or other non-academic standing. Not usually acceptable for articulation.

Psychomotor The division of learning involving 'practical' skills, vice theory and attitudinal. From Bloom et al 1956. See also *cognitive* and *affective*.

RAAF Royal Australian Air Force.

RAF Royal Air Force.

Redbrick The name given to newer universities to distinguish them from the older 'sandstone' (*qv*) institutes. In Europe these include any established in the 19th or 20th century, while in New Zealand and Australia they are more often post-1960.

RMA Revolution in Military Affairs. A significant development in military technology, structure or doctrine causing an adversary to change the way they operate, or face certain defeat. Examples include the machine gun, the aeroplane, John Boyd's OODA (Observe, Orientate, Decide, Act) loop, independent air forces. The concept is contested in academic circles.

RMC Royal Military College [Duntroon].

RAN Royal Australian Navy.

RN Royal Navy.

RNZAF Royal New Zealand Air Force.

RNZN Royal New Zealand Navy.

RPL Recognition of Prior Learning. Credits awarded toward a qualification based on previous learning. See also *CLE* and *ACC*.

SAMS School for Advanced Military Studies [US Army].

Sandstone Older and more traditional universities (pre-19th century in Europe—early 20th century in Australia and New Zealand). See also *Redbrick*.

SAW School of Advanced Warfighting [US Marine Corps].

SCORM Sharable Courseware Object Reference Model. An industry standardisation protocol to ensure interoperability between e-Learning systems.

Summative Assessment used to determine final grades for a course or module.

Syllabus A detailed explanation of what, and sometimes how, a subject is taught. Often confused with curriculum (*qv*).

Synchronous Communication in real time, eg. a telephone conversation. In e-Learning, this is often in a virtual chat rooms or webcasts. See also *asynchronous*.

Tier 1 Pre-commissioning level PME, officer cadet (E). Sometimes involves undergraduate level university education.

Tier 2 Junior Officer PME, up to and including captain (E). Often a Junior Staff Course or similar. For the NZ Army this includes the Grade II and III courses, although they also involve a significant amount of training.

Tier 3 Mid-career PME, major (E). Synonymous with staff course and most professional master degree programs.

Tier 4 Strategic level PME, lieutenant colonel and colonel (E). Examples include CDSS in Australia, SAMS and SAW (both in the US).

Tier 5 Executive level PME for star rank and diplomatic level government representatives. Examples include the most senior courses offered at Harvard Business School or GCSP in Geneva.

V2D Voice, Video and Data Applications.

VESA Voluntary Education Study Assistance. An NZDF system of encouraging members to study toward Service related education. Provision exists for capped refunds of tuition fees upon successful completion, although the amount is often only partial. Some provision also exists for block course, pre-exam study, and exam leave subject to local commander's approval. Service transport and accommodation can also be utilised when it is at no cost to Defence.

VLE Virtual Learning Environments.

VUCA Volatile Uncertain, Complex and Ambiguous. An acronym used to describe the post-Cold War and post-9/11 security environment.

Webcast A multimedia broadcast over the Internet.

WIIFM What's In It For Me.

Abstract

The New Zealand Defence Force needs a better way of educating its most senior officers in New Zealand-specific security issues. Recent studies reveal a need to improve the entire Professional Military Education (PME) system to increase strategic awareness in the officer corps. With its small population, however, innovative proposals are required. The aim of this study is to identify blended learning solutions for Joint Professional Military Education in the New Zealand Defence Force.

Using primarily literature reviews, this book examines the New Zealand Defence Force's current PME system before scanning the international scene for developments in Western military PME systems. Common themes include a move toward modularising PME so individual programs can be tailored as well as increasingly continuous, flexible, and blended learning.

Developments in the education and technology sectors are creating paradigmatic shifts away from legacy content-centric education toward constructivist learning. A rapid increase in technology delivered learning is globalising higher education and giving rise to virtual universities. Associated software is allowing better organisational management of human capital. All of these developments are transferable to the military.

This study recommends a whole-of-career PME framework, where individualised courses of study are designed from a network of residential and blended learning modules. Networked military colleges and affiliated universities will share their courses via a single portal, giving military students greater access to international courses.

The study acknowledges a number of potential problems with the concept and offers possible solutions. The model may appear untenable to many traditionalists, but the emerging generation of students will consider it the normative approach. Trends in the civilian sector suggest the concept is inevitable.

Chapter 1

Introduction

> *Professional Military Education is the systematic examination of subject matter that will develop and increase knowledge and personal mastery of the art and science of war and national security strategy.*
>
> – Professor Alan L. Gropman[1]

Professional Military Education (PME) is a relatively recent phenomenon in the history of warfare. Martin van Creveld's anthology found isolated examples back to Greek and Roman times but concedes formal and structured PME, as we know it today, did not really begin until Frederick the Great established his *académie des nobles* in 1763.[2] In the early days, subjects included castramentation,[3] supply, transport, administration and other warfighting subjects. By the 19th century, curricula had evolved to more academic subjects, such as astronomy, rhetoric, geography, foreign languages and history. In more recent times, these academic subjects were also being taught in the emerging military universities.

Over the years, the relative emphasis of academic and military subjects at staff course level has vacillated to the point where it is still debated today. The various Defence universities continue to deliver both undergraduate and postgraduate education to military officers separate to the staff college system. This apparent need for academic subjects at staff and higher colleges means that relationships are established with civilian universities.[4] These civilian institutes have evolved to meet the needs of their client base by developing military specific programs. This has, in turn, increased civilian teaching at staff colleges with military staff assuming a more mentoring role. There has also been an increase in other non-staff course PME,[5] as well as separate warfighting courses.[6] This offsetting of military subjects for academic ones on staff courses is blurring the distinction between military colleges and universities. In recent years, a false equation of PME and civilian qualifications has emerged.

While the *raison d'être* of staff and war colleges is developing military officers—not awarding civilian degrees—questions need to be asked about the value of these independent institutes. When significant elements of the content are largely

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1. Professor Alan L. Gropman, *Report to New Zealand Defence Force, Project APTUS*, New Zealand Defence Force internal report, 2003, p. 3.
2. Professor Martin van Creveld, *The Training of Officers – From Military Professionalism to Irrelevance*, The Free Press, New York, 1990, p. 17.
3. The art of setting up camps.
4. This is necessary as most Defence colleges have no higher education level research faculty.
5. Such as Law of Armed Conflict and Joint Operations courses.
6. Modules in joint operations and associated operational art are available as stand-alone courses, with many officers completing them independent to staff or war college courses. These courses have now been incorporated as elements of the staff and war course curriculum.

> **We need military scholars, not academics**
> – Commodore James Goldrick
> ADFA Commandant

indistinguishable,[7] why have two separate delivery systems? Unlike the progressive university system of modular, tailorable, flexible and potentially continuous learning, the structure of military education remains largely unchanged since its inception.[8]

The current model for PME in most militaries is a legacy system based on sequential, yet discontinuous and episodic learning. In their more formative years, junior officers receive intellectual, practical, and moral education prior to their specialisation training. At about the ten-year stage of their career (Tier 3), selected officers will usually attend a command and staff course where they learn to plan, organise, and lead large-scale military operations. This tends to include a significant amount of civilian academic and business theories.[9] By their 20th year, selected officers will again return to the classroom to expand on earlier learning and study the civil–military nexus at the strategic level (Tier 4). 'The war college year is intended to prepare war fighters and to educate strategists.'[10] Yet despite its specialisation, this system still has transferability to professional qualifications.

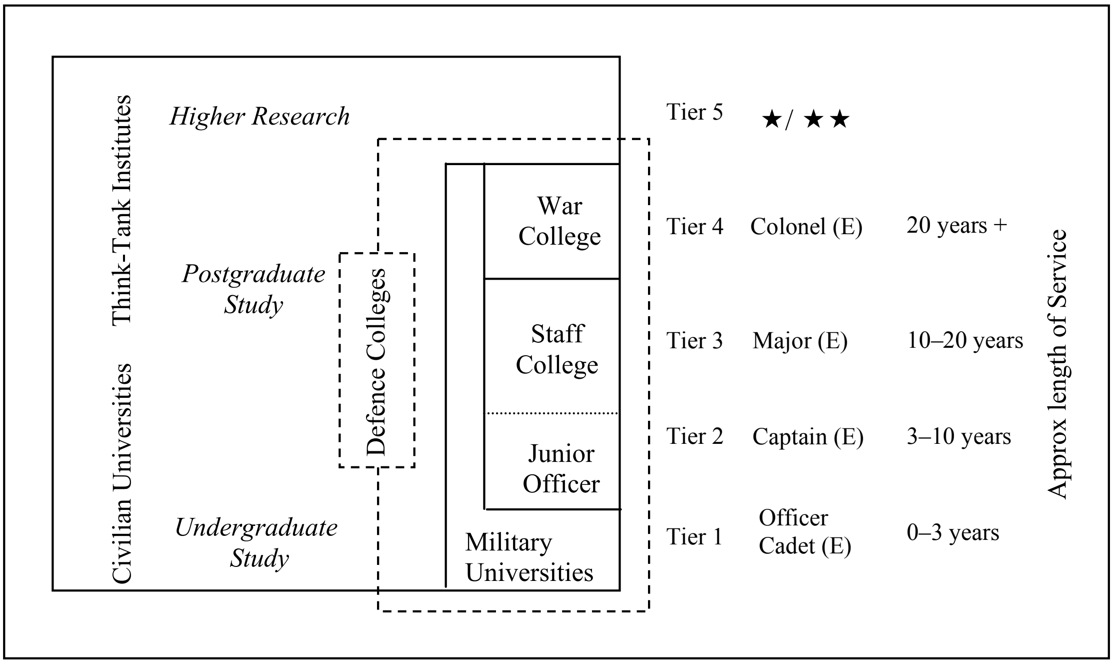

Figure 1 – Generalised Representation of the Relationship between PME Institutes

7 There are some core PME subjects unsuitable for academic delivery by universities. These can still be provided by Defence colleges as separate modules in a shared framework between the military and universities. The intent is for an enhanced partnership, not complete replacement of Defence colleges.

8 Professor Jeffrey Grey of ADFA suggests the current Australian [and therefore presumably New Zealand] PME system has 'past its shelf life … but [is] retained on grounds of narrow parsimony'; 'Professional Military Education and the ADF', *Defender: The National Journal of the Australian Defence Association*, Vol. XXI, No. 3, Spring, 2004, p. 27.

9 Particularly in the field of management.

10 Professor Judith Stiem, *US Army War College – Military Education in a Democracy*, Temple University Press, Philadelphia, 2002, p. 2.

The introduction of professional degrees has given academic standing to some military specific education.[11] While staff courses remain a mixture of military and academic education, many universities are prepared to recognise much of the military coursework towards a professional degree. These are usually non-articulable,[12] but nonetheless remain attractive to potential students. Today, graduates of most staff colleges are awarded both their traditional *passed staff course* (psc) post nominal and a civilian-recognised diploma or masters degree. This, along with a number of other significant developments,[13] prompted strategic reviews of PME in every ABCA military.[14]

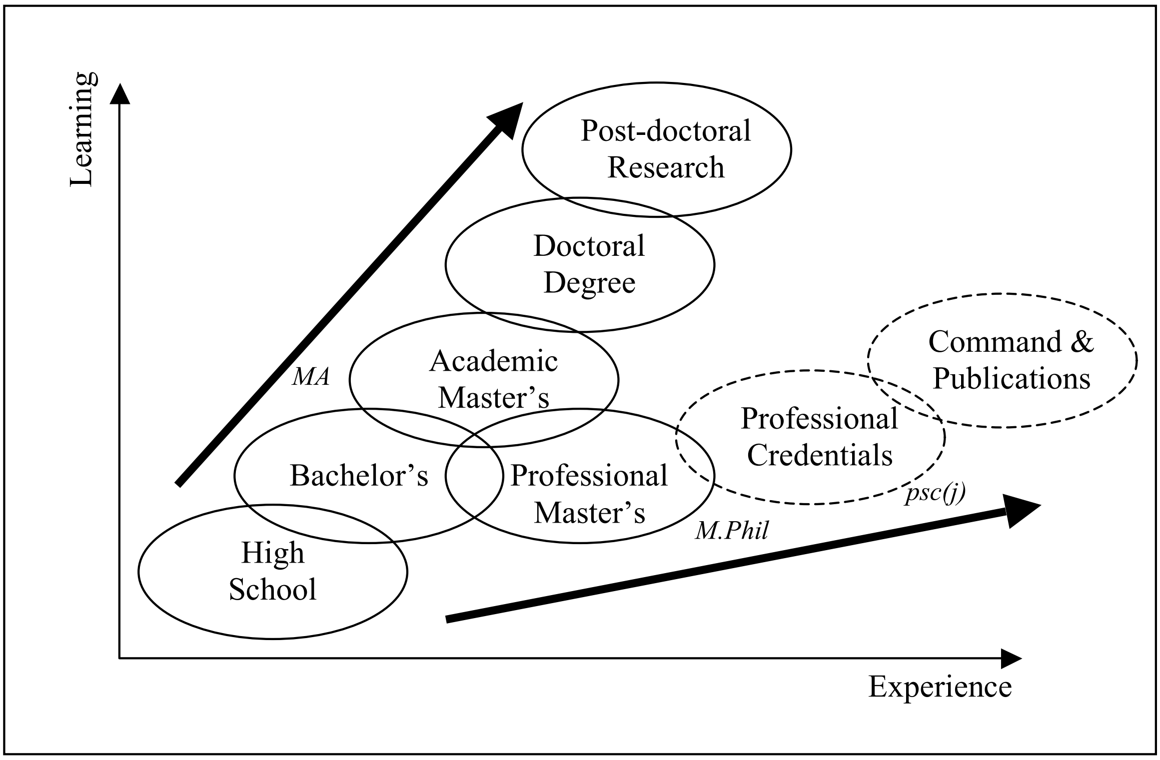

Figure 2 – Academic and Professional Progression[15]

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[11] Examples include blanket approval to enrol in postgraduate study based on specified years of military service (similar to mature student entry for some bachelors degrees) or academic recognition for military studies in command or warfighting.

[12] These are degrees that cannot be used as entry into higher programs such as doctorates.

[13] Such as the increased emphasis on joint education, post-Cold War uncertainty, and reduced budgets.

[14] Examples of each include Australian Command and Staff College, *Where to in the Future*, November 2003; United Kingdom Ministry of Defence, *Modernising Defence Training – Report of the Defence Training Review*, 2001; Canadian Forces College, *Report of the DP3 Delivery Option – Study Group*, 2001; and various reviews at US Colleges, such as US Army War College Curriculum Transformation Working Group, *Report to the Commandant on a Curriculum Model for AY 06*, Carlisle Barracks, PA, 29 June 2004.

[15] Adapted from David Last, 'Military Degrees: How High is the Bar and Where's the Beef?', *Canadian Military Journal*, Summer, 2004, p. 32.

Strategic Uncertainty

> [Deputy Secretary of Defense, Dr Paul Wolfowitz] wondered why so little thought had been devoted to the danger of suicide pilots, seeing a 'failure of imagination' and a mind-set that dismissed possibilities.
>
> – The 9/11 Commission Report, 2004[16]

'Failure of imagination' is no longer tolerable in military planning. PME must better prepare all officers for the post-Cold War VUCA[17] environment. For the same reasons national security strategies have become more flexible,[18] military commanders need to be far more imaginative and responsive to change. These decision-makers need to have a much broader, and deeper, education than their predecessors.[19] To make matters worse, the *CNN effect* and increased media globalisation,[20] has created the *strategic corporal* phenomenon. Militaries can no longer limit education to a few senior elite.[21] All military personnel will need to, not only operate comfortably, but thrive, in the new complex warfighting environment.

Macro-terrorism has also created unprecedented levels of international cooperation between militaries in the fight against terror.[22] The New Zealand Defence Force (NZDF) is an active member in both intelligence gathering and counter-terrorism operations for multinational efforts. In addition to globally networked operations, the NZDF also engages in networked exercises. The same expertise and equipment used in both training and operations can easily be transferred over to education systems. Competency in both will need to be seamless.

The NZDF of the future will be a Network Force.
– Foundations of New Zealand Military Doctrine

Network Centric Warfare

Network Centric Warfare (NCW) systems will exacerbate not only the expectation, but need, for high technology military education. Fortunately, the same infrastructure and training required for NCW will

16 'The National Commission on Terrorist Attacks Upon the United States', *GPO Access*, 2004, p. 336, http://www.gpoaccess.gov/911/, viewed 10 August 2004, quoting Department of Defense memo, Wolfowitz to Rumsfeld, 'Were We Asleep?', 18 September 2001.

17 Volatile, Uncertain, Complex and Ambiguous.

18 Most developed countries have now shifted from threat-based to the more flexible 'task and roles' based strategic planning. For more on flexible militaries, see Colonel John A. Bonin and Lieutenant Colonel Telford E. Crisco, 'The Modular Army', *Military Review*, March–April 2004, pp. 21–27.

19 Michael Flowers, 'Improving Strategic Leadership', *Military Review*, March–April 2004, pp. 40–41. See also Patrick Donahoe, 'Preparing Leaders for Nationbuilding', *Military Review*, May–June 2004, pp. 24–63; Jeffrey D. McCausland and Gregg F. Martin, 'Transforming Strategic Leader Education for the 21st Century Army', *Parameters*, Autumn, 2001, pp. 17–33; or B.G. Bernard Tan, 'The Learning Military Organization – Revisited', *Pointer*, Vol. 29, No. 3, July–September 2003, http://www.mindef.gov.sg/safti/pointer/back/journals/2003/Vol29_3/7.htm, viewed 21 September 2004.

20 This includes not only the embedded reporters but also the proliferation of digital photos and e-mail.

21 Steven Kenny, 'Professional Military Education and the Emerging Revolution in Military Affairs', *Air & Space Power Journal*, Vol. 10, Issue 3, Fall, 1996, pp. 50–64.

22 Macro-terrorism involves large-scale attacks by non-state actors.

enable the NZDF to keep pace with higher education in the civilian sector. Many NCW applications will permit 'distributed command and planning exercises and multi-actor simulations for mission rehearsal'.[23]

As militaries shift toward NCW and other high technology systems, they reduce their personnel numbers.[24] As a result, smaller personnel numbers will make it harder for units to sustain long absences to PME courses.[25] Shorter, modularised, and tailored blended learning appears to be the most popular alternative to traditional long courses.

Education Sector Developments

Although traditional university education revolves around the on-campus 'lecture then tutorial' paradigm, many tertiary institutes are quickly embracing blended learning as a new delivery method. This approach is fast replacing lecture theatres even for on-campus students. Technological advances now permit e-Learning to excel over both didactic and traditional distance learning methods. The NZDF Command and Staff College, along with most overseas Defence colleges, is affiliated to one or more civilian universities that are already transforming their courses.[26] For the NZDF, e-Learning in PME is a question of when, not if. The real challenge is not only to embrace it, but also to restructure proactively so as to optimise the benefits.

> Advances in computers, communication, and other information technologies make it possible to significantly increase learning rates for a diverse population of people with widely varying backgrounds, learning styles, and interests.[27]

Developments in Information and Communication Technologies (ICT) make e-Learning a viable alternative to some contact courses. Unlike traditional correspondence and distance learning, e-Learning provides scope for virtual syndicate discussions, online lectures, and chat-room based study groups. Next Generation Internet (NGI) connections and faster computers will resolve the current cost and technical difficulties of video-conferencing. Online courses also offer greater experiential learning in dirty, dull, dangerous, expensive, or hypothetical topics

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23 Australian Defence Doctrine Publication ADDP–D.3.1, *Enabling Future Warfighting – Network Centric Warfare*, Australian Department of Defence, February 2004, pp. 3–5, indicates NCW applications 'may' permit education opportunities, however, dedicated educational networks already exist. For an example see the Defense Advanced Research Wars (DARWARS) website, http://www.darpa.mil/dso/thrust/biosci/training_super.htm.

24 Dr David S. Alberts, John J. Garstka and Frederick P. Stein, *Network Centric Warfare – Developing and Leveraging Information Superiority*, Second Edition, C4ISR Cooperative Research (CCRP), 2000, p. 229.

25 Air War College, 'Professional Military Education (PME) in 2020', A SPACECAST 2020 White Paper, *Airpower Journal*, Summer, 1995, p. L–7, http://www.au.af.mil/au/awc/awcgate/pme2020.rtf, viewed 2 August 2004.

26 Victoria University in Wellington and Massey University.

27 Kendra Bodnar, 'Significance of Government Investment in Educational Technology Research and Development', in *International Review of R&D Priorities and Funding*, 29 October 2003, http://www.fas.org/learn/intl_rev/significance.htm, viewed 21 September 2004. Bodnar cites Sigmund Tobias and J.D. Fletcher, *Training and Retraining – A Handbook for Business, Industry, Government, and the Military*, Macmillan Publishing New York, April 2000; and Web-Based Education Commission, *The Power of the Internet for Learning – Moving from Promise to Practice*, Washington DC, 2000.

through simulation, immersion, and role-play.[28] 'Virtual worlds are the only practical way to experience catastrophe in advance of the real thing. Virtual worlds provide high quality outcome feedback.'[29]

The so-called Revolution in Military Affairs (RMA) identifies significant developments in military technology, doctrine or structure. Not surprisingly then, the current revolution of all three in the education sector has caused some to claim there is a Revolution in Military Education.[30] Whether the developments are revolutionary or evolutionary is irrelevant, the fact is PME is on the verge of a paradigmatic shift.

A major contribution of e-Learning is the paradigmatic shift from education to learning. Instead of top-down teacher-centric education, attention is now given to how to maximise learning from the student's perspective. 'e-Teaching' or 'e-Instruction' do not feature in today's enlightened understanding of learning theory.[31] Adaptive Learning Environments (ALE), or technologically enabled learning, now focuses on effects-based learning[32] instead of perpetuating legacy systems. Increased technology in education is paradoxically increasing learner-centricity.[33]

There are a number of reasons why e-Learning is popular in higher education. Some institutes report a desire to increase student learning, encourage global collaboration, overcome resource constraints, reach more learners, and revitalise programs.[34] While others emphasise flexibility,[35] currency,[36] scalability,[37] and the ability to tailor learning to individual students.[38]

Embracing a network centric PME system may soon be more than just desirable for the NZDF. The New Zealand Government has a number of stated policies relating to leading the global learning revolution. As will be discussed further in Chapter 6, these initiatives reflect an increasing awareness of the contribution technology is having on

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28 For an example of Command Post simulators see Gary R. McCray, 'Training the Command', *Military Training Technology*, 19 July 2004, http://www.mt2-kmi.com/articles.cfm?DocID=544, viewed 2 August 2004. For an example of an international relations simulation, see Macquarie University's online Middle East Course available at http://www.mq.edu.au/mec/sim/.

29 Yavuz Ercil and Kadir Varroglu, 'Mental Models and Learning Processes', in Heinz Florian (ed.), *Military Pedagogy – An International Survey*, Studies for Military Pedagogy, Military Science, and Security Policy, Peter Lang, Germany, 2002, pp. 220–221.

30 Among others, Kenny, 'Professional Military Education and the Emerging Revolution in Military Affairs'; and Last, 'Military Degrees: How High is the Bar and Where's the Beef?', pp. 29–36.

31 In its infancy, terms such as Computer Based Training (CBT) and Computer Assisted Instruction (CAI) were coined. These have now been dropped in favour of more learner-centric terms.

32 This is a play on the military concept of Effects-Based Operations (EBO) where greater effect is achieved by targeting sources rather than instruments of conflict. It captures the essence of thinking smarter about achieving desired end-results rather than perpetuating legacy delivery systems.

33 This topic will be explored further in Chapter 5.

34 Joanne Curry, 'The Global Virtual University: Dream or Reality?', *NORDINFO-NYTT*, April 2001, http://www.nordinfo.helsinki.fi/publications/nordnytt/nnytt4_01/curry.htm#Why%20are, viewed 2 August 2004.

35 24/7 (asynchronous), anytime, anywhere, and just-in-time traits.

36 Ease of updating to ensure the students are receiving the most up-to-date material.

37 Can reach an almost endless number of students.

38 Marc Rosenburg, *e-Learning Strategies for Delivering Knowledge in the Digital Age*, McGraw-Hill, 2001.

global education and the knowledge economy. Education in the civilian sector is changing fast.[39]

The concepts advocated in this book are not radical. Although some elements include leading-edge technology, the concept proposed has been tested and proven.[40] The concept of elective modular education has been the normative model in higher education for more than a century.[41] The use of the Internet in higher education is now well established and is set to overtake residential campuses in the near future. The emergence of blended and modular PME in ABCA militaries is currently being developed and will be well established within the next few years.

The NZDF needs to remain relevant to the next generation of Servicemen and Women.
– Brigadier Lou Gardiner

Investing in Personnel Development

As the NZDF embraces joint Effects-Based Operations (EBO), it moves away from platform-centricity and must invest even more in its most important weapon system—people. After all, 'machines don't fight wars, people do, and they use their minds'.[42] This point is particularly relevant to New Zealand and other smaller countries lacking the national capacity to maintain spectrum-wide RMA technologies.[43] Such countries now acknowledge they must specialise in niche capabilities and rely on allies to spread the risk. In New Zealand's case, world-class trained and educated personnel are arguably our best contribution to global security. But more of our junior personnel need to understand how allies—and potential adversaries—work and think. We need better access to foreign education to learn their doctrine, culture, and capabilities. 'Force structures and career systems must support ongoing learning, development and knowledge enhancement as change occurs.'[44]

The growth in military technology and globalisation necessitates a more educated officer. Officer candidates are more educated now than ever and the next generation

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39 Examples and reasons for this are explored further in Chapters 5 and 6.

40 Examples include eArmyU, PfP and APAN networks. These, and others, will be examined in later chapters.

41 'Educational reforms swept the [US] in the last quarter of the 19th century lead by Charles William Eliot, who was elected president of Harvard in 1869. A major component of the educational reforms popularized [sic] by Eliot was the reorganization [sic] of curricula into a system of electives. In the 1870's under Lipscomb's leadership, the University of Georgia experimented with this novel form of higher education.' From Ayers Saint Gross, Architects, *The History of University of Georgia*, University of Georgia Physical Master Plan, 11 March 1998, http://maps.uga.edu/ftp/masterplan/Sections/VI.%20Physical%20Master%Plan.pdf, viewed 30 July 2004.

42 Colonel John Boyd.

43 Spectrum-wide refers to the conflict spectrum used to describe military operations from 'Assistance to the Civil Community' through to 'War of National Survival'. For examples, see Australian Air Publication 1000 (AAP1000), *Fundamentals of Australian Aerospace Power*, Fourth Edition, Royal Australian Air Force Aerospace Centre, Canberra, 2002, p. 91; or New Zealand Defence Doctrine Publication (NZDDP–D), *Foundations of New Zealand Defence Doctrine*, New Zealand Defence Force, 2004, pp. 5–6.

44 Clare Bennett (ed.), *New Zealand Futures Assessment: Professional Development Implications*, New Zealand Defence Force, 2003, p. 20.

of senior officers expect to be challenged with continuous and escalating education.[45] They are cyberthinkers[46] who need a diet of information-rich education to thrive, or perhaps even survive.[47] But this is not just about recruiting and retention—militaries need more strategically aware operators at even the lowest levels.[48]

Meeting the needs of future generations is only half the problem. The rapidly changing security environment means today's officers need to have access to regularly updated PME. Due to a number of reasons, the NZDF has an aging population and the trend is expected to continue.[49] The need to provide better education to more currently-serving officers already exists.

The Problem

In 2002 the Chief of the New Zealand Defence Force initiated a review of PME. Project APTUS, as the study was called, involved a number of sub-studies into various areas of officer education. Collectively, these studies identified a number of deficiencies in the NZDF JPME system.[50] While many of these problems have already been rectified, others demand more comprehensive investigation and innovative solutions, the most challenging being the call for a war college.

> The New Zealand Defence Force needs a joint war college/capstone (strategic) level of professional military education (for promising 05/06 officers and key civilian members of the Defence Force) because New Zealand's geographic and demographic situations are unique, and, therefore, its national security strategy must also be distinctive.[51]

The starting point for this study was to resolve the dilemma of creating a NZDF War College with only a small number of available students. However, research into foreign PME systems and civilian educational developments reveals a number of other emerging opportunities. The benefits of these have applicability to all levels of the NZDF PME system and will address several other PME problems. These include:

- professional development above staff course level needs to be structured,
- more senior officers need to have access to joint PME,
- senior officers need a greater understanding of New Zealand's unique geopolitical environment, and
- senior officers need a greater awareness of New Zealand Government agencies.

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45 Peter F. Drucker, 'The Age of Social Transformation', *The Atlantic Monthly*, 274, No. 5, November 1994, p. 62; and Bennett, *NZDF Futures Assessment*, p. 8.

46 Cyberthinkers are those who regularly think and operate with the aid of the Internet.

47 Optimising employees potential (thrive) should be the goal of any organisation but retention (survival) of the 'best and brightest' is just as vital.

48 Kim Burger, 'US Must Train "Thinking" Troops', *Janes Defence Weekly*, 13 August 2003; and Bennett, *NZDF Futures Assessment*, p. 22.

49 Bennett, *NZDF Futures Assessment*, p. 7.

50 *Joint* PME refers to academic programs involving all three Services, not training in joint operation warfare.

51 Gropman, *Report to New Zealand Defence Force, Project APTUS*, p. 2.

It should be noted the Tier 3 PME provided at the NZDF Command and Staff College is currently considered very good. However, advancements being made overseas, in both civil and military education, technology, and the rapidly changing security environment,[52] suggest this course can be improved even further. Many of these advancements centre on the relatively new phenomenon of blended learning.

Aim

To identify blended learning solutions for Joint Professional Military Education in the New Zealand Defence Force.

The Structure

This book follows the familiar *context, options, and recommendation* format. Chapter 2 (PME in New Zealand) provides a background to current, and possible future JPME in the NZDF. Chapter 3 (International PME) scans the global PME environment with emphasis on the Australian, United Kingdom, Canadian, and United States models followed by an analysis of trends emerging in other foreign colleges. Although primarily descriptive, consideration is given to current initiatives and relevance to the emerging NZDF system. From these examinations comes a more analytical discussion of the major challenges facing PME in Western military colleges.

Chapter 5 (Adult Learning) summarises contemporary understanding of adult learning (andragogy) as it applies to higher education. It shows how emerging trends in this field are converging with developments in the technology sector. Chapter 6 (e-Learning) highlights these advancements as they apply to PME with particular emphasis on opportunities for the NZDF. The convergence of andragogy, information technology, and PME challenges culminates in Chapter 7 (Professional Military Learning) where the concept of a blended JPME framework is expanded into a Global Defence College model. Chapter 8 (PML Challenges) addresses challenges and general implementation issues likely to confront the proposal. The book concludes with a summary chapter.

Methodology

The qualitative data, on which the findings of this study are based, come from a number of sources. The scan of NZDF and international PME systems, including the challenges, is based on literature reviews, official web sites, personal interviews and correspondence. The chapters on adult and flexible learning were based primarily on literature reviews. The concluding chapters represent a culmination of all preceding chapter research as well as studies on existing global universities. The final concept was refined following feedback from draft reviews and briefings to various expert groups. These groups included Canberra-based NZDF personnel, staff from the NZDF CSC, various ADF agencies, the Canadian Forces College, and a number of authoritative academics in the field of PME, higher education and e-Learning from around the world.

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52 These three significant changes are widely discussed in a number of publications. For a succinct exploration, see Dr A.J. Barrett, 'The Promise and Pitfalls of Distributed Learning', *Canadian Military Journal*, Spring, 2003, pp. 3–7.

Limitations

This is not a comparative study to determine if blended learning is a solution for JPME in the NZDF. Current trends, both in the civilian education sector and Western militaries, indicate blended learning will be the normative model in the near future. This study explores the implications of this inevitable shift and proposes strategies to maximise emerging strengths and mitigate potential weaknesses.

This study provides a direction for general military education, not training. It does not distinguish between uniformed personnel and Defence civilians. Unless otherwise stated, all references to 'officers' includes civilian equivalents. Similarly, PME is not limited to commissioned military officers.

For ease of explanation, the study uses the existing officer PME system as the starting point to develop the new construct. This proposed replacement framework has applicability throughout all rank levels and encourages overlap between non-commissioned officer (NCO), warrant officer, and commissioned officer PME. The final concept should be extrapolated to include all ranks. Conceivably it could be offered to other government departments involved in security issues—among others, but notably, Police and Foreign Affairs.

The emphasis of this study is on delivery and structure, not content. The scope of the study excludes any top-down training needs analysis for PME in the NZDF.[53] Any references to content are for background or illustrative purposes only. Detailed cost benefit analyses are similarly beyond the resources of this research.

While the proposal may appear to emphasise the needs of the individual, this perception is due largely to its contrast with the current system. The recommended replacement model is a symbiotic balance of individual and organisational needs.

The intent is to outline a future direction rather than impose a set solution suitable for immediate implementation. The vision highlighted in this book should guide thematic congruency in incremental JPME advancements to ensure eventual seamless synergy. While most of the concept's elements are available today, the realisation of the system in the NZDF is probably several years away.

Finally, it is necessary to acknowledge the potential impact strategic shock[54] and breakthroughs have on any technology-based futures study. While the model proposed in this book is achievable with existing technology, it is not possible to anticipate rapid developments in related areas that may alter the shape of the system. Flexibility needs to be built in, to future-proof the construct.

[53] This is indeed an important area, but beyond the scope of this paper. Separate studies, such as the NZDF Competencies Framework, are considering this aspect.

[54] Such as 9/11, major financial crises, or (hypothetically) a near-total Internet collapse due to a major software flaw or virus.

Chapter 2

PME in New Zealand

The aim of this chapter is to set the context for current issues in the NZDF's PME system. It begins with a snapshot of the NZDF before examining the single Service PME systems. This is followed by an overview of the NZDF Command and Staff Course. The chapter concludes with a glimpse at what may lie ahead for PME in the NZDF. Annex A provides an insight into the evolution of PME in the NZDF.

The NZDF in Context

Reflecting its unique geo-strategic environment and the post-Cold War security agenda, New Zealand deliberately restructured its Defence Force away from high-end combat capabilities into what some would call a boutique military. In 2004, Government spending on Defence was around 1.3 per cent of the country's Gross Domestic Product. Successive reductions brought many capabilities down to near critical-mass minimums.

The NZDF is small in comparison with most Western militaries. Although the country's landmass is comparable with Japan or the United Kingdom, its population is only four million people. The NZDF currently consists of 8750 uniformed personnel, 2500 non-regular personnel and 1800 civilian employees. In terms of combat effectiveness, the Royal New Zealand Air Force (RNZAF) has only transport and maritime capabilities, while the Royal New Zealand Navy (RNZN) is soon to become a two-frigate force. Similarly, the NZ Army has little more than a single motorised battalion group. While the Special Forces element is reputable and operationally busy, it too is small.

Yet despite its size, the NZDF has a proud reputation of competing on the world stage. It is an active player in the United Nations and regularly contributes to both global peacekeeping operations and selected combat operations. Because of its size, and desire to contribute internationally, the NZDF faces unique challenges in preparing its personnel for large-scale coalition operations. Comprehensive and world-class PME is vital if the NZDF wishes to remain relevant to its coalition partners.

Current PME in New Zealand

New Zealand Army

The NZ Army has the most comprehensive PME framework of all the NZDF Services. At the Tier 1 level (pre-commissioning), the Army administers six undergraduate schemes. The two main domestic ones are the *Kippenberger Programme* and the *Malone Scheme*. The first involves selected officer candidates studying on-campus at Massey University before entering their mainstream officer training. The *Malone Scheme* is similar but involves only the tuition fees and a living allowance for Territorial Force (TF) officers studying at various universities. A third type of undergraduate education involves sending officer cadets to the Australian Defence Force Academy (ADFA) in Canberra prior to their officer training at the Royal Military College, Duntroon (RMC). A limited number of other officers pursue university courses at other New Zealand institutes through voluntary education schemes.

The NZ Army also administer a number of internal courses for their junior officers (Tier 2). In the pure PME sense, the Army has a Junior Staff Officers (JSO) Course that is largely conducted via distance learning (DL) modules.[1] Other courses include the Grade II and Grade III Staff and Tactics courses; the former being an intensive 12-week course, followed by a five-day Operational Evaluation Board (OEB) that involves a number of deliverables up to Battalion level. Both the Grade II and III are also available extramurally to Territorial Force officers.

The intensive Grade II course partially offsets the difficulty of sending officers to higher courses overseas yet ensures all are effective in high-level appointments in coalition environments. The OEB helps rank candidates for further PME at staff course and beyond. It also determines which officers will attend overseas courses. The Grade II course is highly successful and is now replicated in the Australian Army.

The Army is the only NZ Service to link PME with promotion above junior officer level. The Army also has a stated policy of increasing the education of its entire officer corps. To address the throughput difficulties and encourage greater participation, the Army established the Military Studies Institute (MSI). Effectively re-marketing their Education Corps, MSI brought together civilian academics and experienced warfighters to deliver postgraduate military studies courses in partnership with Massey University. Courses now include undergraduate degrees and diplomas, and are available to all rank levels.

The NZ Army is transforming its Tier 3 (Major) PME. Previously, the RNZAF Staff Course was used almost as an alternative course for second grade majors while the ‘best and brightest’ were sent to overseas colleges. The system now includes the NZDF CSC on the short list of preferred courses for full psc(j) endorsement. Some other overseas courses are still used as a second level qualification, while a third option is to complete a series of approved courses and qualifications through civilian institutes to obtain a ‘staff qualified’ (sq) post nominal. The latter normally excludes the possibility of a command post and caps promotion at lieutenant colonel.

Army PME and MSI courses make extensive use of DL. Many staff and administrative courses are delivered through distance modules, as are nearly all MSI courses in Defence Studies. MSI has allowed personnel from the other two Services to enrol in their courses, although arrangements were not formalised at the higher levels and funding issues hindered expansion. Current initiatives are attempting to increase MSI’s mandate as a NZDF unit to resolve such problems.

1 At one stage, this course was exclusively DL (paper-based transitioning to online) but has now adopted a blended approach by reintroducing a residential phase.

Royal New Zealand Navy

The RNZN utilises both civilian institutes and foreign militaries to conduct most of its PME. Selected officer cadets study engineering and related degrees mainly at Auckland University, with a few others studying elsewhere in New Zealand.[2] At the mid-career level, naval officers have the opportunity to study in a program offered by Victoria University in Wellington. The qualification involves both academic study and recognition of previous military experience. For more professional learning, the RNZN has traditionally made extensive use of overseas militaries both to train and educate its personnel. Most overseas technical and seaman officer training is now conducted in Australia.

Pre-command PME is the Divisional Officer Leadership Course (DOLC). This course is conducted by the Advanced Training area of Officer Training School (OTS). A number of other smaller courses are also delivered as part of the RNZN's PME framework. These include catch-up programs in new initiatives, the Officer Leadership Development Program and the Maritime Strategy Program.

Senior officer education is spread mainly between the US, Australia and Britain. Although the NZDF Command and Staff Course allocates two or three positions to RNZN students, the Navy seldom fills its quota with uniformed officers. Greater emphasis is placed on the Principle Warfare Officer (PWO) Course for the warfighters. The broader education of CSC is not a promotion requirement for senior naval officers.

Royal New Zealand Air Force

The RNZAF established a University Cadet Squadron (UCS) in the 1960s at RNZAF Base Wigram in partnership with the University of Canterbury. Later renamed a Flight, the scheme ensured the RNZAF had a steady stream of graduates in officer posts. With the closure of RNZAF Base Wigram in 1995, the scheme disbanded and was replaced with a much smaller Reserve Officer Training Corps (ROTC) style scheme where university students are sponsored through their studies. The ubiquity of graduates applying for RNZAF officer positions has reduced the need for high throughput in such schemes. Nearly every officer branch in the RNZAF requires a university degree before entry—the most notable exception being aircrew.

Internal PME in the RNZAF is similar to the other two Services with promotion courses at most levels. Flying Officers are required to attend a two-week Flight Commanders Course,[3] while flight lieutenants must pass the eight-week Junior Staff Course (JSC) as a promotion prerequisite. More so than the other two Service's equivalent Tier 2 courses, the RNZAF JSC has a significant emphasis on broad education in areas such as international relations. Lecturers include a number of university academics who also present to the staff course. Despite the relocation and renaming of the RNZAF CSC in 2002–04, the JSC remains with the college in

2 The three main university schemes offered by the RNZN are Tangaroa, Amokura, and Chatham.

3 Previously known as the Junior Officer Executive Course (JOEC), this short introduction to the roles and responsibilities of a flight commander is now open to all rank levels if they are posted into a flight commander position.

Trentham.[4] The associated distance learning modules of communication skills, however, are the RNZAF's responsibility.

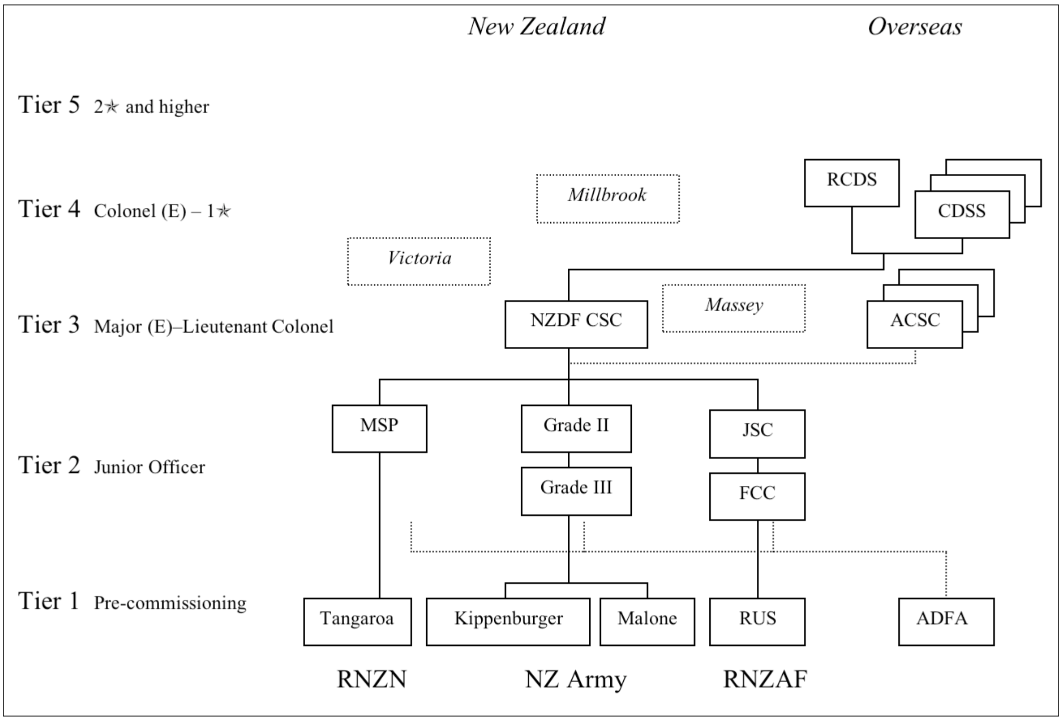

Figure 3 – Symbolic Representation of the Main Courses in the NZDF PME System

Even when it was the sole provider of Tier 3 military education in New Zealand, the RNZAF only ever selected a few to attend and still does not tie the course exclusively to promotion.[5] Unlike the NZ Army, senior PME is selective for RNZAF officers. Only a few attend overseas courses while others are promoted without any formal education. Apart from the communication skills modules associated with the JSC, the RNZAF does not use distance learning for PME.

Other PME

All three Services utilise non-military institutes to supplement their PME. Through a scheme called Voluntary Education Studies Assistance (VESA), Air Force and Navy personnel can apply to have their tuition costs refunded upon successful completion of approved civilian courses. Although the Army system has the same aim, fees are paid in advance.[6] Provision also exists for limited time off to study and sit exams. In addition to these schemes, the NZDF offers full-time study leave for selected personnel to attend tertiary courses. Typically these scholarships are awarded to personnel who have completed all but their final year through part-time study.

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4 At the time of writing, the Junior Staff Course's continued delivery at the College was not guaranteed.

5 For example, only four out of the ten current Administrative Branch wing commanders have completed a staff course. Source: New Zealand Defence Force, *Royal New Zealand Air Force List*, January 2004.

6 The fees are recovered if the student fails.

Overseas Courses

In addition to the NZDF CSC, the three Services send a number of officers to overseas institutes for PME. At the undergraduate level, all three Services send officer cadets (E) to the Australian Defence Force Academy (ADFA), while the Australian Command and Staff Course in Canberra is the most popular overseas Tier 3 course. The NZDF sends five Army and one RNZN officer annually but only one RNZAF officer every second year. In alternate years, the RNZAF attendee completes a fellowship at the Air Power Development Centre in Canberra.

Other staff colleges used by the NZ Army include the US and Malaysia, (one officer to each, annually) and Singapore (one officer every three years). Other colleges used intermittently include the Philippines, France, and India. The RNZAF also sends selected officers to China to participate in short PME courses.

The NZDF also sends officers to overseas institutes for non-staff course PME. These include the Asia Pacific Centre for Security Studies in Hawaii, the US National Defence University, and the Air War College. Other institutes are used for professional education in engineering and logistics. The main three are the Defence Resource Management Institute Course and Logistics Executive Development Course (LEDC) both in US, and the Australian Technical Staff Officers Course (ATSOC) in Canberra.

At the Tier 4/5 level, the NZDF send selected senior officers to foreign strategic level courses. The most commonly used include the Centre for Defence and Strategic Studies (CDSS) in Australia (two students annually plus a permanent DS); the Institute of Defence and Strategic Studies (IDSS) in Singapore (one every three years); and the Royal College of Defence Studies (RCDS) in the United Kingdom (one every three years). The NZDF also utilises domestic courses for strategic level education. The most frequently used is the Millbrook Strategic Leadership Course with up to six officers per year attending.[7]

History of RNZAF Command and Staff College

The college was established in 1950 at RNZAF Base Whenuapai, near Auckland, and initially only taught junior RNZAF officers military law, drill, organisation, staff duties and administration. In 1959 the college introduced the six-month staff course for squadron leaders, based largely on the RAF Command and Staff Course. The facilities provided study and sleeping accommodation for 21 students. Number 2 RNZAF Course included a RNZN officer and a civilian. In 1963 the NZ Army began sending officers and a US Air Force (USAF) exchange officer took up a position on the Directing Staff (DS). The USAF post was replaced by a NZ Army DS in 1968. The syllabus evolved considerably over the years, most noticeably with an increased emphasis on broader professional education.

During the 1990s, the staff course enhanced its broad education by offering university accredited subjects. A relationship was formed with Massey University to deliver modules that could articulate towards a master's degree. The course continued to extend students in general officer skills with communication, staff duties, leadership,

7 In 2004, attempts were being made to introduce an intermediate level (Tier 3/4) of education through the Auckland University based Millbrook 'Institute for Strategic Leadership'.

and command subjects. Like overseas colleges, there was also an increased emphasis on joint operations. As the only New Zealand institute delivering senior level PME, the RNZAF CSC continued to accept officers from all three Services as well as government civilians and police. Foreign students began attending courses in 1976 and a permanent Royal Australian Air Force (RAAF) DS post was first filled in 1994. Building renovations in 2000 allowed the maximum course size to increase to 24, although this size was never actually achieved.

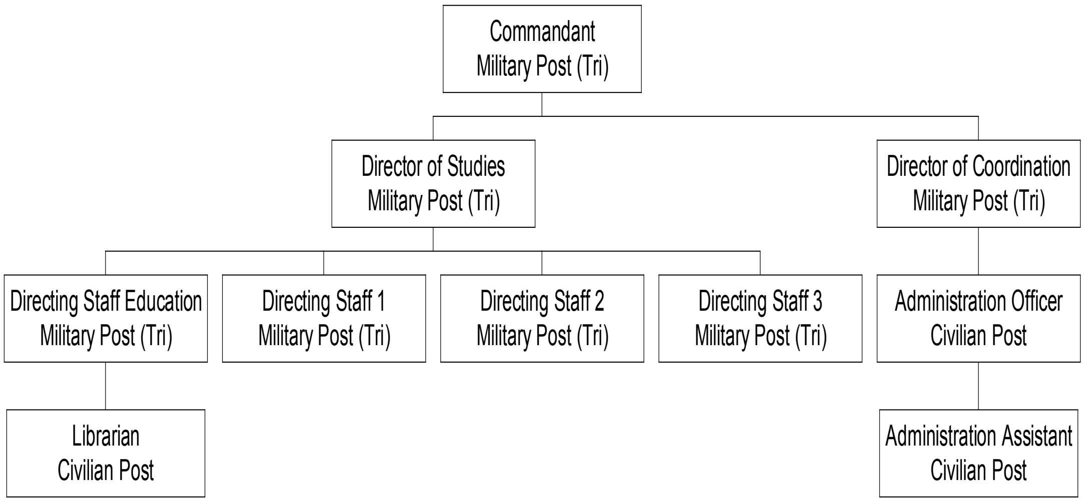

Figure 4 – The Structure of the NZDF CSC in 2004

In 2002, the college was renamed the NZDF Command and Staff College. At the same time, Project APTUS began reviewing PME in the NZDF. In addition to the formal name change, the college redesignated the DS posts to ensure an equitable balance of Service representation. The college moved to Trentham in 2004 as part of the planned closure of RNZAF Base Auckland. Relocating the college gave it better access to the NZDF Joint Force Headquarters as well as government and corporate level civilian businesses.

The NZDF Command and Staff Course in 2004

The aim of the NZDF Staff Course is to provide an advanced Service education to selected officers to prepare them for higher command and staff appointments. The target population is selected NZDF and invited foreign officers at the major (E) level, who have demonstrated potential for promotion. The course is currently 30 weeks (seven months) in duration[8] and is entirely residential. A number of domestic and overseas study tours complement the academic workload.

The current syllabus is divided into the following five areas: Communications Skills, Command Studies, Operational Studies, Strategic Studies, and International Relations.

[8] Expected to increase to about eight months in 2005 with the inclusion of smaller stand-alone courses. The length of the course is a contentious issue. While some senior officers see an attraction in a shorter course (six months), others would prefer it to enjoy greater credibility by mirroring the standard yearlong overseas courses and to award a full masters degree on completion.

The course includes four university papers (courses) that provide graduates with a Post-Graduate Diploma of Defence and Strategic Studies, and can be articulated to an eight-paper Master of Philosophy in Defence Studies at Massey University. Students can complete the remaining four papers under the sponsored VESA scheme either before or after the staff course. In addition to the four university papers, the course is delivered through other distinct, but overlapping modules. Some of these modules are courses in their own right and some are taught by the ADF.[9] In one instance the instructors fly over from Australia to deliver the module, while in the later part of the course, the student body flies to Australia to join in with a major coalition operations exercise. The overseas study tour could also be considered a separate module, albeit linked to the international relations phase.

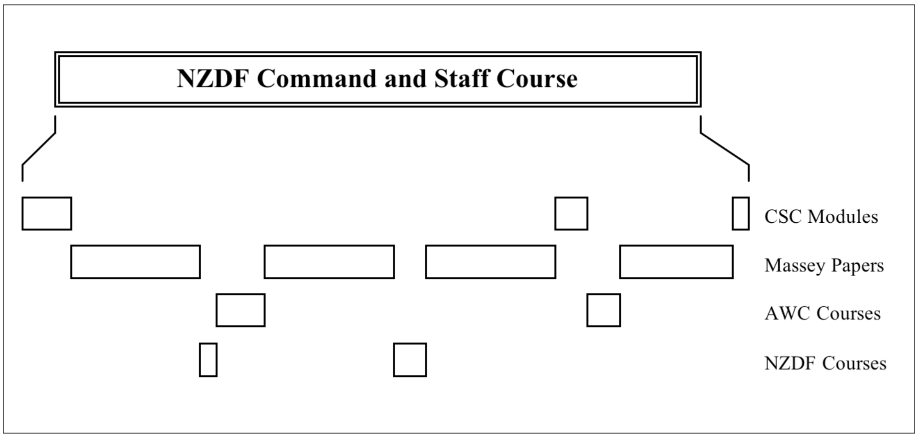

Figure 5 – Symbolic Representation of Current NZDF CSC as Separate Modules

The modular nature of the staff course has already highlighted some potential benefits. It permits students, who have missed sections due to medical or operational reasons, to complete the remaining modules at a later stage and graduate with a full 'passed staff course joint' (psc(j)) and Diploma of Defence Studies qualification.[10] Several students arrive on the staff course having already completed the Master of Philosophy program including the four papers taught as part of the staff course. At the time of writing, however, there was no provision for these students to undertake alternative study during those modules.[11]

The current methods of learning employed by the college are the same as traditionally found in sister institutes around the world. These include: pre-readings, internal and external lectures, syndicate discussions, presentations, essays, exercises, and role-plays, and study tours (both domestic and overseas). Until recently, an individual research paper was also included although it was removed to allow a greater emphasis on joint operations. Video-conferencing, simulation and e-Learning are not currently used.

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9 The Australian Defence Force Warfare Centre deliver a two-week Joint Operations Planning Course to the staff course and the NZ Introduction to Joint Warfare Course to the Tier 2 course.

10 This occurred with a student on the 2002 course who completed his remaining modules in 2003.

11 Ideally, officers who have already completed the Massey University program will be sent to foreign colleges to complete their Tier 3 staff course.

The college has a number of advantages in being small. With an academic staff of four, and only 25 students, the college is one of the smallest in the world.[12] This does, however, permit a better rapport to be established both between the students and between the staff and students. This is particularly important for the foreign students who are often speakers of languages other than English. Logistically the course is easier to manage in terms of visits to industry and overseas study tours. Although small in absolute terms, the strength of networking bonds is enhanced due to the close relationships established. Unlike larger courses where some weaker students are able to lurk in the background, there is an increased awareness of each other's strengths and weaknesses.

Being small also has disadvantages. There is clearly a reduced ability to network when only exposed to a smaller number of students. Similarly, there is reduced cross-pollination from working with different people. There is also a proportionally smaller budget denying synergistic benefits of high-end facilities. For example, in Australia, the three Services recently pooled their collective college budgets together to fund a larger course but one that could afford to attract better lecturers from further a field, with the intention of delivering high quality presentations.

Affiliated Universities

The NZDF is currently strengthening its relationship with two New Zealand universities for Defence related studies. Victoria University in Wellington and Massey University, with campuses throughout the country, are both actively engaging with the NZDF CSC. Other universities, such as Auckland and Otago, also provide limited academic support to Tier 3 military education. Auckland in particular was involved in lecturing to both the JSC and CSC at Whenuapai. The continuation of this relationship is likely to diminish with the college's geographical shift from Auckland to Wellington.

Victoria University is emerging as a centre of excellence in New Zealand Security Studies. Its *School of Government* delivers a number of programs in diverse areas from public policy to terrorism.[13] Some of these operational level courses are relevant to the staff course while the higher level strategic and government policy ones will suit a Tier 4 executive level framework for senior officers.

Massey University established a 'Centre for Defence Studies' in the 1990s. Staffed by both academics and senior military officers, the Centre offers programs for both Defence and civilian personnel.[14] Some of the undergraduate courses are a compulsory element of the Army's initial officer training at Officer Cadet School (OCS), while the Master of Philosophy courses dovetail in with the staff course and four of the papers represent stand-alone modules on the course.

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[12] Although the facilities in Auckland could take up to 24, this figure was never achieved on the Tier 3 course—the smallest course had only 13 students. Facilities in Wellington are more extensive and the Unit is now established for 30 students with a surge capacity up to 60 for individual modules.

[13] For more, see their website at http://www.sog.vuw.ac.nz.

[14] These include: Bachelor of Defence Studies, Graduate Diploma in Arts (Defence and Strategic Studies), Postgraduate Diploma in Arts (Defence and Strategic Studies), Master of Philosophy (Defence and Strategic Studies), Master of Arts (Defence and Strategic Studies), and Doctor of Philosophy (Defence and Strategic Studies).

Future Direction of NZDF PME

The NZDF Command and Staff College faces an exciting yet uncertain future. At the time of writing, a number of studies were recommending expansion and amalgamation with other institutes. Many were awaiting approval, while others were still in draft form. Some of these studies include: Project APTUS, with sub-studies in the form of The Gropman Report,[15] The Strategic Leaders Interviews, The Competencies Study, a futures paper, reviews of the Australian and United Kingdom (UK) PME systems, and various internal analyses. Independent to Project APTUS is a detailed study of NZDF PME by Lieutenant Colonel Robert Mackie, who argues in favour of merging the three Service PME systems.[16]

Each of the strategic studies recommends establishing an umbrella New Zealand Defence College (NZDC) to unify education agencies in the three Services. While the timeframe is unclear, it appears likely such an institute will one day materialise. The exact shape and subordinate components also remains unclear (Project APTUS' proposal is shown in Figure 6).

Existing units which might come under the NZDC, although not necessarily collocated, include:

- the NZDF CSC;
- Military Studies Institute;
- the Defence Language Centre;
- Defence library services; and
- Air, Land and Sea Power Development Centres.[17]

Other tasks which could be managed by the NZDC include:

- coordination/delivery of a Tier 4 and 5 program as well as a higher education framework including mentoring and exchanges;
- governance of all NZDF voluntary and directed education funding;
- governance of the various Tier 1 undergraduate university programs;
- audit and evaluation for NZ and overseas PME courses, including a post-foreign course debrief and top-up module;
- research think-tank on Leadership, Strategic Studies and Lessons Learned/Noted—similar to those in Australia, UK, and Canada;
- publication or significant support of a Defence journal;[18]
- hosting of regular Defence seminars;

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[15] Gropman, *Report to New Zealand Defence Force, Project APTUS.*

[16] Robert Mackie, *A Strategic Plan for Officer Education in the New Zealand Defence Force*, unpublished research paper, New Zealand Defence Force, 2001.

[17] The Army and Navy do not currently have units with these titles but do have related areas such as Capability and Development for Army and a C4I/NCW cell for the RNZN.

[18] An internally produced journal may be restricted—or appear restricted—in its freedom of speech. For a truly open academic forum, such a publication may need to be produced by a collective board of civilian editors representing the various think-tanks and universities.

- joint, partially joint, or synergistic collocation of Tier 2 officer education;
- governance of an online portal for blended learning PME;
- Human Capital and Academic Knowledge Management for NZDF;
- matriculation of civilian recognised qualifications;
- translation of Career Learning Experiences (CLEs) into academic credits;
- coordination/delivery of short educational courses such as Law of Armed Conflict and Joint Operations Planning; and
- creation and management of a whole-of-career, Professional Military Development (PMD) system.

Of these, the most dramatic issue is the suggestion of a Tier 4–5 war college level program. Given the small size of the NZDF and the relatively small strategic studies centres available in New Zealand universities, some innovative solutions will be required.

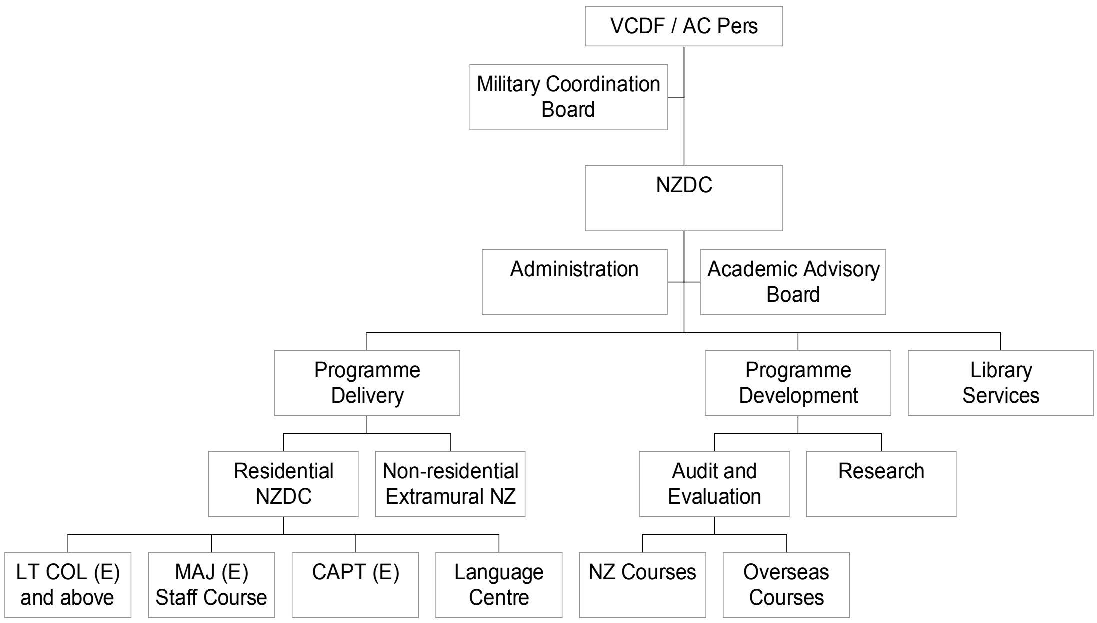

Figure 6 – The NZDC Structure (as proposed by Project APTUS in 2004)

Summary

The NZDF is one of the smallest militaries in the Western world, yet an active contributor to global security. But to participate meaningfully, it must ensure it has well-trained and educated personnel. Each of the three Services has its own Tier 1 and 2 PME system but share a small Tier 3 course. The NZDF utilises foreign militaries to supplement its PME, especially at the Tier 4 and 5 levels where New Zealand has no domestic system. The NZDF commissioned a review of its PME to ensure current changes are being made in the right direction. A number of new initiatives are expected to emerge from these studies, including a new NZDF Defence College. This, and a number of other proposals, reflect developments in foreign militaries. The next chapter explores dominant characteristics and trends in overseas PME institutes.

Chapter 3

International PME

Unsurprisingly staff colleges and military academies have a high degree of variation in both aim and curriculum.

– Professor Jarmo Toiskallio[1]

This chapter reviews the PME constructs used by ABCA and other Western militaries. Its aim is to identify both lessons and trends to help shape the next generation JPME system for the NZDF. The first three systems examined are Australia, the United Kingdom, and Canada. Due to its size, only a brief synopsis is provided of some United States PME systems. The chapter concludes with an overview of other military education environments where lessons can be drawn.

Australia

The Australian Defence Force has a long history of delivering its own PME. The establishment of the Royal Military College (RMC) Duntroon in 1911 allowed officer cadets to study general education in a military environment.[2] The Royal Australian Navy (RAN) and RAAF developed their own colleges at Creswell (1915) and Point Cook (1948)[3] respectively. These colleges amalgamated into the joint Australian Defence Force Academy (ADFA) in 1986.[4] Similarly, the three single Service staff colleges merged into the Australian Command and Staff College (ACSC) in 2001. This new college also replaced the Joint Services Staff College that had previously targeted lieutenant colonel (E) level PME.

The one-year ACSC course is established for 180 course members including 40–45 overseas students. The current syllabus has two terms of foundation (general) studies, followed by a three-month single Service phase, and concludes with a joint operations module. ACSC costs about $100,000 per course member[5] but is still cheaper than many comparable overseas courses, some of which provide two DS per syndicate of

1 Professor Jarmo Toiskallio, 'Military Pedagogy is a Practical Human Science', in Jarmo Toiskallio, (ed.) *Mapping Military Pedagogy in Europe*, Department of Education, Finnish National Defence College, Helsinki, 2000, pp. 45–64.

2 RMC did not begin teaching university courses until the 1960s. It then affiliated with the University of New South Wales to offer degrees in 1968; Dr Chris Clark, *Duntroon, The Royal Military College of Australia 1911–1986*, Allen & Unwin, Sydney, 1986. For more on Duntroon, see Darren Moore, *Duntroon: The Royal Military College of Australia 1911–2001*, Oxford University Press, 2001.

3 Air Vice-Marshal R.E. Frost, *RAAF College and Academy 1947–86*, Commonwealth of Australia, Canberra, 1991, p. 29.

4 All three single Service colleges continued to exist after 1986, albeit greatly reduced in size. They now manage the remaining PME for their respective Services, including the commissioning and promotion courses as well as some non-ADFA university education programs.

5 A total annual cost of $18 million. This includes operating, capital use charge (rent), staff salaries and allowances. It does not include student salaries or allowances (est. $13–$15 million extra).

ten students.[6] The ratio of DS to course members at ACSC was reduced dramatically from the previous three colleges to realise one of the projects major aims—financial efficiency. The current ratio is about a third fewer DS than most overseas colleges.[7]

Four years after its formation, ACSC is now reviewing its curriculum. While the initial syllabus was drawn from the best of the former colleges, many synergistic improvements are now emerging. The Curriculum Working Team (CWT) project precedes the renewal of the external delivery contract in 2005. Half of the current syllabus is out-sourced on a five-year contract and any significant changes to the format or delivery of the course need to be made prior to re-tendering. At the time of writing, the findings of the CWT were not submitted, however, it appears highly likely the course will move toward a modular, or at least partially modular, program.

In some respects, the ACSC program has always been partially modular. For example, the Australian Army Reserve requires officers to attend selected ACSC modules, as does the NZDF Command and Staff College. Another recent example involved an officer from the newly established Timor Leste Defence Force who attended selected modules at ACSC and the Australian Centre for Defence and Strategic Studies (CDSS) to obtain a fast-tracked education in key subjects. The next generation of ACSC modules, however, is intended to give greater timetable flexibility and, more importantly, elective modules.

Introducing elective options at certain stages of the course paves the way for students to personalise their Tier 3 PME. A further benefit will be the possibility of students staggering their modules around operational deployments or other commitments. Conceivably, the ADF could also consider allowing students to complete modules from other ADF educational institutes (CDSS, ADFA etc) or even from overseas colleges. Similarly, foreign students may be permitted to complete selected modules from ACSC as part of their own personalised PME. To help manage the complex timetabling and individualised learning programs, a customised learning management system is being investigated.[8]

In the mid-1990s the ADF recognised the need for an organic Tier 4 course. The Australian CDSS began delivering a one-year course at the colonel (E) level with a 50 per cent foreign student mix. The aim of the course is to provide a more local flavour to higher PME than is available in the US or Europe. The course is divided into modules and is formally offered as a whole course or as individual modules.[9]

Continuous reviews are identifying further refinements for both the ACSC and CDSS syllabi. There is also an initiative introducing a strategic level warfighting course

[6] The UK Advanced Command and Staff Course has a civilian university and a uniformed DS per syndicate to address both academic and military needs. The civilian staff provide greater continuity in the college's corporate knowledge. USAWC has up to four civilian staff per syndicate (seminar) group.

[7] This approximated comparison does not consider the differences in tasks. For example, some DS at other colleges may have Training Development responsibilities.

[8] The intended million-dollar IT system will integrate ACSC and CDSS learning systems including Curriculum, Assessing, Reporting, Evaluating, and Archiving (CAREAr). It is also expected to manage personal details for student and staff administration.

[9] For more, see their website at http://www.defence.gov.au/adc/CDSS/index.htm.

(Higher Command and Staff Studies Course) to bridge the Tier 3 and 4 gap. In concert with these recent changes, the ADF established the Australian Defence College (ADC) as an umbrella organisation to govern ADFA, ACSC, and CDSS. Currently there are no synergistic academic benefits of the three colleges belonging to the same command. The sharing of course material and interaction between teaching staff or students is also yet to be realised.[10] Scope also exists for other joint PME agencies, such as the ADF Warfare Centre, to come under ADC command.

The ADF Officer Development Program addresses PME at Tier 4 and 5 level. This scheme involves a number of capstone short courses as well as longer term mentoring programs at various levels. One higher program utilised is the Australian New Zealand School of Government's (ANZSOG)[11] Executive Masters of Public Administration (EMPA). Eight participating universities, including Victoria in Wellington, jointly deliver this degree. The NZDF does not currently utilise this program.

The ADF also use the higher military colleges in the US and UK for Tier 4 PME. These include the Royal College of Defence Studies (RCDS) in England, the National Defence Colleges (NDC) in Pakistan and India, and the National Defense University (NDU) in the US. Other courses used by the ADF around the one-star level (including civilian staff) include the US War College and the respective equivalents in each of the US Services.[12] A variety of regional Higher Staff Courses are used for Defence Attaché designates in Japan, Indonesia, Thailand, and Singapore.

The ADF also uses overseas courses for selected one and two-star officers who are earmarked for promotion. The highest of these is the Harvard Business School's Advanced Management Program course. This is a two-month executive level course used by the ADF since 2001 for PME at the three-star designate level. Each year the ADF sends three officers, and an equivalent APS executive, to this $A100,000 course. Other high-level courses include the Asia Pacific Centre for Strategic Studies' Senior Executive Course in Honolulu for two-star officers, the UK Higher Command and Staff Course (HCSC), the US Senior International Defence Management Course for one star officers, and Oxford University's five-day Strategic Leadership course. The ADF also contributes five O6/one-star level officers to the annual five-day 'Harvard Club of Australia' course.

Despite the ADF's maturing JPME structure, single Service PME continues right through to Tier 3 and Tier 4. Approximately one half of ADF officer cadets attend ADFA. The remaining are either recruited as graduates or, if they require a degree, are sent to civilian universities. Like most countries, Tier 2 (junior officer) PME is primarily a single Service responsibility. All three Services, however, administer Tier 3 courses for majors (E) such as their three separate pre-command courses. The RAAF also delivers a Wing Commander Course.

All three ADF Services utilise DL and are in the process of converting over to e-Learning formats. Additionally, the ADF has a higher-level organisation, the

[10] The one exception so far is the Timor Leste officer discussed earlier.

[11] This is only used by the civilian Australian Public Service (APS), not the uniformed members of the ADF. For more on ANZSOG, see http://www.anzsog.edu.au.

[12] Excluding the USMC.

Directorate of Flexible Learning Solutions, to oversee joint ventures and standardise delivery. The ADF has selected DOMAIN[13] as their integrated Learning Management System (LMS) and Learning Content Management System (LCMS) to provide a single portal for online learning. At the time of writing, DOMAIN was undergoing rollout trials with the aim of being fully functional by 2005.

United Kingdom

Professional Military Education has a long history in the British Military.[14] Following the significant military deficiencies identified during the 1854 Crimean War, the Duke of Cambridge advocated the need for greater military education. A number of studies and reports were generated until 1858, when the first staff course commenced at Camberley.[15] Over the years the syllabus evolved as new subjects came into vogue and old ones became redundant. Camberley later spawned offshoots in Canada, Australia, India, Pakistan, and Palestine.

The Royal Air Force (RAF) and Royal Navy (RN) developed their own PME along similar lines to the British Army.[16] Both had a proud and established history when all three amalgamated in January 1997 to become the Joint Services Command and Staff College (JSCSC). This new institute was then brought under the synergistic control of the embryonic Defence Academy (DA) in 2000. The umbrella organisation also includes the Royal College of Defence Studies (RCDS) and the Royal Military College of Science (RMCS).[17] In addition to the joint courses the Defence Academy also delivers single Service Tier 2 PME, while a three-month Higher Command and Staff Course (HCSC) targets Tier 4. The Defence Academy is, therefore, responsible for Tier 2 PME as well as joint PME at Tiers 3, 4, and 5.

The Tier 3 Advanced Command and Staff Course (ACSC) is delivered as individual modules.[18] The current annual throughput is 330 students, of whom 90 are 'international'. The syllabus is divided into three main phases: 10 weeks of foundation studies, 18 weeks single Service and 14 weeks of joint operations. Prospective students are also required to complete pre-course modules via DL. Successful graduation of the course also provides officers with the majority of a Master of Arts in Defence Studies from King's College, London. Like the Australian ACSC, the 46-week UK course is undergoing a shakedown review.[19]

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13 Defence Online Management and Instruction Network (DOMAIN) is the ADF name for a commercial off-the-shelf product from *Thinq.* For more, see their website at http://www.thinq.com.

14 Professor Martin van Creveld, *The Training of Officers – From Military Professionalism to Irrelevance*, The Free Press, New York, 1990, pp. 43–51.

15 Frederick W. Young, *The Story of the Staff College 1858–1958*, Camberley, 1958.

16 Professor Cathy Downes, 'The Evolution of Officer Education in the British Military Profession after World War II', in E.V. Converse (ed.), *Forging the Sword – Selecting, Educating, and Training Cadets and Junior Officers in the Modern World*, Imprint Publications, Chicago, 1998.

17 The Academy also includes a number of Centres of Research. For more, see http://www.da.mod.uk/DefenceAcademy.

18 Air Vice-Marshal Brian Burridge, 'Post-Modern Military Education: Are We Meeting the Challenge?' *Defence Studies*, Vol. 1, No. 1, Spring, 2001, pp. xi–xviii.

19 To complete the implementation of the new organisation and identify any unforeseen issues.

Following on from their 1998 Strategic Defence Review was the 2001 UK Defence Training Review. Among other recommendations, this review adopted the British Government's 'Lifelong Learning' policy and combined it with an awareness of increased individual responsibility for learning. Other trends identified were the need for shorter residential courses (to meet the high operational tempo), as well as increased flexibility, mobility and integration (to avoid unnecessary duplication). The increase in multinational force operations also highlighted the need for more exposure to coalition campaign planning.

The British Army is altering its staff course emphasis from major (E) to lieutenant colonel (E) to keep it in line with the other two Services. To fill the Tier 3 gap, the Army is introducing a 35-week Initial Command and Staff Course (Land)—or ICSC(L)—which will also absorb their Army Junior Division (senior captain level) and Defence Technology Courses.[20] Similar to the ICSC(L) is the Royal Navy's ICSC (Maritime) and the RAF's Initial Command Staff Training Course. All three Tier 2 and 3 courses are delivered as single Service but under the governance of the joint Defence Academy.

The Defence Academy is introducing a Modular Masters Programme (MMP) to increase individual ownership of advanced professional development. The intention is to offer the degree in five employment areas (Combat, Defence Policy, Human Resources, Technical, and Logistics). The program will initially be offered in partnership with JSCSC's affiliated universities, Cranfield and King's College of London. Options for expanding the program will be included in future contract renegotiations. Some of the contributing courses will no doubt be available through DL and available to other militaries.

The HCSC gradually evolved from an Army to a joint course. Today, the 30-strong student body equitably reflects the single Service ratios. Three positions are offered to NATO officers. The syllabus focuses on the operational level of war and the enduring principles of operational art. It is taught around five themes with individual study and several written deliverables.[21] The course was initially modelled on the US School of Advanced Military Studies (SAMS) at Fort Leavenworth, and now has a number of international links with other similar level courses around the world.

The world-renowned RCDS is one of the highest residential PME courses available to military officers. The 11-month course is divided into three terms, including two major study tours, and awards a Master of Arts in International Studies through King's College, London.[22] The three terms can be taken individually as separate modules.

The UK Armed Forces have commissioned a Review of Career Courses (ROCC) to improve alignment of the Continuing Professional Development (CPD). The ROCC is recommending changes to a number of courses and the introduction of bridging programs. One example at the Tier 2 level is a series of modules known as Military

[20] This new course will be delivered by JSCSC and is likely to receive some accreditation towards the new Modular Masters Programme (MMP).

[21] *Deliverables* include all student submissions (written, oral, or multimedia), formative, summative, or unassessed.

[22] For more, see https://da.mod.uk/RCDS/Programme/MAOption/.

Knowledge (MK), which is delivered by DL. These courses are currently being placed online and are available for both civilian and other militaries to purchase. Other studies, such as the 2001 Defence Training Review, have also identified an increasing need for e-Learning.

Acknowledging e-Learning's limitations in certain areas, the Review criticised the Ministry of Defence (MOD) for lagging behind the civilian sector in implementing it. The study also identifies the increased expectation of continuing education in what the UK Government calls 'The Learning Age' and the realisation e-Learning will soon become the normative model of education. In response to this, the MOD launched its Defence e-Learning Delivery and Management Capability (DELDMC) to provide a central system for hosting, managing and delivering e-Learning packages.[23]

Canada

The Canadian Defence Academy (CDA) is the umbrella organisation responsible for PME in the Canadian Forces. In addition to regulating authorities, the CDA unifies both the Royal Military College (RMC) and the Canadian Forces College (CFC). Other specialist and leadership centres also come under the purview of the CDA. Although the Canadian Forces (CF) are about four times the size of the NZDF[24] and geographically different, they do share a number of similarities.[25] Their system and current initiatives have applicability to the NZDF for both replication and integration.

The Canadian Forces' PME is called the Officers' Professional Development System (OPDS). This is broken down into Development Periods (DP) 1 to 4, where DP1 is officer cadets, DP2 is junior officers, DP3 is major/lieutenant colonel (E), and DP4 is colonel (E) and above. A recent study of the OPDS titled 'Officership 2020' identified the need for specific changes to a number of areas. As a result of this study, the CF is currently reviewing its entire DP3 education. Among the various proposed solutions, distance and e-Learning feature prominently.

Being unified, the Canadian Forces have an established joint PME framework. At the Tier 2 level, the CF offer a university accredited professional development program to ensure all junior officers attain a common level of knowledge in Defence management, military law and history, Canadian civics and politics, military science and technology, and leadership and ethics. Like many CF courses, this program is delivered through distributed (distance) learning.

The current CFC Command and Staff Course is similar to the Australian and UK course. It is a yearlong, joint (unified) course and involves about 20 per cent international students. The course is delivered by six departments offering a total of 23 different streams. Each student studies 13 core modules plus three modules related

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23 Robin Langford, 'BT wins MoD e-Learning contract', *Netimperative*, London, 3 June 2004, http://www.netimperative.com/cmn/viewdoc.jsp?cat=all&docid=BEP1_News_0000065910, viewed 2 August 2004.

24 Approximately 41,000 personnel (excludes reserves, mounted police and other non-military Forces).

25 Defence spending is 1.2 per cent of GDP (similar to NZ) and their foreign policy is also very similar to the NZ Government's, especially in terms of security issues and recent force restructuring.

to their Service component. While it is primarily residential, consideration is being given to alternative delivery methods to increase the number of graduates.

One of the major problems facing CFC at the moment is throughput.[26] While the numbers have recently been increased to 110, this is still only about 25 per cent of all major (E) who attend staff course. The stated policy of 'all means all'[27] implies an annual throughput of 390, although the current backlog demands even more. Other problems identified include the ubiquitous high operational tempo (or *perstempo*), geographic dispersion, and conflicting career requirements.

At the Tier 3 and 4 level, Canadian officers can also enrol in modules from other military colleges. There is concern, however, about the number of CF personnel receiving a disproportionate amount of foreign education, particularly in the US. While this helps ease the burden of DP3 throughput, no cohesive Knowledge Management (KM) system is monitoring the balance of Canadian to foreign education. Among other options, they are currently considering a combined LMS and structured PME framework to alleviate this problem.

The CFC also delivers a modular Advanced Military Studies Course (AMSC) at the Tier 4 level. Along with other courses the AMSC is recognised as partial completion of RMC awarded Masters of Business Administration or Masters of Arts degrees with various alternative environmental streams. Reserve officers can attend selected modules from CFC courses relevant to their needs or they can complete the Joint Reserve Command and Staff Course. Senior officers also attend foreign Tier 4 courses such as RCDS and equivalent US colleges.

Unlike most other Defence academies, the CDA exploits the synergies of their university campus (RMC) and their staff college (CFC). This results in graduates of the staff course and higher courses being awarded credits, or partial credits, towards either professional or academic degrees, without the need for an external accreditation authority. RMC offers six senior credits, equivalent to six one-term courses, towards a Bachelor of Military Arts and Science, upon successful completion of the CSC. Alternatively, students can accept credits toward the professional Master of Defence Studies or, if eligible, they can pursue a Master of Arts in War Studies or the Master of Arts in Defence Management and Policy.

The Canadian Defence Academy also has links with civilian universities. Athabasca University, for example, grants CDA graduates credits towards its online programs for the Executive Master of Business Administration, the Executive Master of Business Administration in Information Technology Management, and the Executive Master of Business Administration in Project Management.

United States of America

The United States (US) military is obviously in a different league to other Defence forces. The relevance of US PME systems to a country like New Zealand is in many

[26] *Throughput* refers to the number of graduates the college produces compared with the total cohort of potential students per annum.

[27] This quixotic policy requires every major (E) to attend Tier 3 (DP3) PME.

ways limited, but some concepts can be extrapolated and, potentially, others can be tapped. Under the Foreign Military Sales (FMS) program, the US military exports PME.[28] A comprehensive analysis of all US PME courses is not realistic here, although is available in other sources.[29] The following section examines only a sample of the 20 main US PME institutes for indicative trends.[30]

Like its sister organisations, the USAF has a broad PME structure of universities and colleges from Tier 1 to 5. They offer comprehensive education through both residential and online distance courses with elective modules throughout.[31] They exploit Information Technology (IT) systems to maximise blended learning opportunities for students around the world. Numerous *Futures* studies, including *Professional Military Education in 2020*[32] and *Brilliant Warrior*,[33] articulate both a vision and expectation of a network enabled, hyper-learning PME system within the next 15 years.[34] Nearly every study refers to the rapid advancement in educational technology, the changing expectations of learners, and the increased need for higher education in tomorrow's military. They refer to this new concept as the 'adaptive learning environment' (ALE) employing a Global Information Infrastructure (GII).[35] Many of these prophecies are already being realised.

The US Army's Command and General Staff College in Fort Leavenworth, Kansas, has recently restructured its Tier 3 Intermediate Level Education (ILE). Traditionally, the chosen few were selected to attend the residential version, while a second tier could complete a non-residential version. Today, however, the main ten-month residential course, with 1200 students, is restricted to the warfighters; while the new three-month course, with subsequent specialisation-specific modules, is offered at satellite campuses for other career branches. By law, the US Army can no longer treat residential and non-residential graduates differently.

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28 The full system is referred to as International Military Education and Training (IMET) and covers both FMS and sponsored education. For more, see John A. Cope, *International Military Education and Training: An Assessment*, Institute for National Strategic Studies, National Defence University, Washington, October 1995, pp. 6–12.

29 William E. Simons (ed.), *Professional Military Education in the United States: A Historical Dictionary*, Greenwood Press, Westport, 2000.

30 These include seven senior (Tier 4–5), four intermediate (Tier 3), and nine Tier 1 academies/ROTC.

31 Richard R. Muller, 'Air Command and Staff College', in Simons, *Professional Military Education in the United States*, p. 23. See also the ACSC website at http://www.acsc.au.af.mil/Distance%20Learning/distance-Learning.htm#acscandtheInternet.

32 Air War College, 'Professional Military Education in 2020', A SPACECAST 2020 White Paper, *Airpower Journal*, Summer, 1995.

33 Lieutenant Colonel Carol S. Sikes, Dr Adelaide K. Cherry, Major William E. Durall, Major Michael R. Hargrove and Major Kenneth R. Tingman, *Brilliant Warrior: Information Technology Integration in Education and Training*, a research paper presented to Air Force 2025, August 1996, available at http://www.au.af.mil/au/2025/volume1/chap10/v1c10–1.htm.

34 See also Leonard Holder and Williamson Murray, 'Prospects for Military Education', *Joint Force Quarterly*, Spring, 1998, pp. 81–90; and S.H. Kenny, 'Professional Military Education and the Emerging Revolution in Military Affairs', *Air & Space Power Journal*, Vol. 10, Issue 3, Fall, 1996.

35 GII is described as more than just a 'network of networks', it includes communications such as telephone, cellular, cable and satellite networks; information equipment/appliances, including computers, televisions and telephones; information resources, including educational materials, medical databases, and entertainment and commercial programs; applications, such as telemedicine, electronic commerce and digital libraries; and people of all skill levels and backgrounds. From 'Perspectives on the Global Information Infrastructure', Computer Systems Policy Project, Washington DC, http://www.cspp.org/reports/perspectives.html#intro, viewed 21 September 2004.

Warfighters attending the full course have a 75 per cent compulsory syllabus with 15 elective modules making up the difference. Six of the electives may be prescribed based on an officer's specialisation, and the remainder is the officer's free choice. In addition to the master's degree awarded for passing the course, students can choose to attend extra classes in the evening, from a variety of external universities, to obtain an additional master's degree.

The Marine Corps Command and Staff College was established in Quantico, Virginia, in 1920. It was originally modelled on the US Army schools at Forts Benning and Leavenworth, but in later years developed stronger bonds with US Navy schools. Today the standard, yearlong Tier 3 course has around 200 students who study strategic and operational art across the full spectrum of conflict—with an obvious emphasis on amphibious and expeditionary operations. Since 1994, the college has been offering an in-house master's degree to those students who elect to complete additional assignments. A second year program is conducted for selected students at the School of Advanced Warfighting. In 1992 the Tier 4 Marine Corps War College was established, and in 1997 the Marine Corps University created the college of Continuing Education. This latter institute works together with the residential colleges to offer ADL PME.

Today, the US Military has a number of war college level institutes. These include the United States Army War College;[36] Naval War College;[37] Air War College; Marine War College; Joint Forces Staff College; National War College; and National Defense University, which includes the Industrial College of the Armed Forces.[38] The standard programs revolve around core and elective modules, war games and a major research project. Most of these colleges began offering DL programs in the 1960s; the largest being the Air War College, which peaked in 1983 with nearly 10,000 enrolled distance students.

The US Army War College's two-year non-resident course is claimed to be the best Tier 4 DL available—as good as the residential program.[39] This raised congressional questions about the justification for the more-expensive residential course. In a cost-saving effort, a recent study investigated the possibility of closing the residential program completely and replacing it with a blended learning version.

> In close coordination with the military Departments, develop alternatives for evaluation as part of … [a] review which would gradually move intermediate and senior service schools from one-year resident to shorter periods of residency, through employment of distance learning and

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36 For more on USAWC, see J. Stiehm, *US Army War College: Military Education in a Democracy*, Temple University Press, Philadelphia, 2002.

37 Founded in 1884, the Naval War College was the first US Tier 4 institute and became a model for others around the world.

38 For more on each of these, see Simons, *Professional Military Education in the United States*, or the websites listed in the bibliography.

39 The online seminars are multimedia enriched, high-end systems and attract interest from even the civilian educational sector. Their claim that it is academically more demanding than the residential course stems from the fact it requires more reading and more deliverables.

> regionally-accomplished weekend seminars, with a goal of achieving three months of TDY [Temporary Duty] resident education no later than 2009.[40]

While the USAWC's response acknowledged the value of the ADL program course, it recommended against abolishing the residential course.[41] Based primarily on questionnaires to former residential students, it determined most of the 'high flyers' in the military system were too busy in their primary posting to accommodate additional study.[42] It also acknowledges that the success of the ADL version was largely due to the residential course faculty support.[43] The final Government Accountability Office study abandoned the original question and instead focused on the need for better metrics in measuring the effectiveness of ADL.[44]

Electives and civilian accreditation have been a feature of US Tier 4 PME for many years. Elective courses were first introduced at the Naval War College in 1966 and soon followed at other PME institutes. The National War College currently offers over 100 elective programs while the Industrial War College offers more than 150. Since 1994, National War College graduates have been awarded a Masters in National Security Strategy with similar schemes existing at most other colleges. In 2001, the Naval War College joined with the University of Maryland to offer online master's degrees.[45]

Global Scan

PME courses around the world share both similarities and differences with ABCA systems. For example, courses in Germany, Russia, Austria, and Sweden are all two years long, as opposed to the more common 12 months. Some are alliance-based (NATO, Baltic States, and Inter-American) with no dominant nationality; while others, such as Israel, are exclusive.

Many Defence colleges offer both distance education and non-residential versions of their standard courses.[46] This approach suits geographically dispersed forces (such as Canada and Russia) as well as the time-constrained reserve elements. DL also suits

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40 Memo from Dr David Chu, Under Secretary of Defense for Personnel and Readiness to US Army War College, July 2002; quoted in Professor Martin Cook, *Curriculum Transformation Working Group – Report to the Commandant on Alternative Curriculum Model for AY 06, June 2004*, presentation given at the Australian Defence College, 30 July 2004.

41 At the time of writing, there was still the possibility this recommendation may be overturned.

42 Other factors considered the high *perstempo*, Generation X officers wanting more balanced lifestyles, and combat commands' unwillingness to release senior officers on Temporary Duty.

43 US Army War College Curriculum Transformation Working Group, *Report to the Commandant on a Curriculum Model for AY 06*, Carlisle Barracks, PA, 2 June 2003, p. 33.

44 For an explanation of why they changed, see United States Government Accountability Office, *Military Education – DOD Needs to Develop Performance Goals and Metrics for Advanced Distributed Learning in Professional Military Education*, Report to the Ranking Minority Member, Committee on Armed Services, House of Representatives, July 2004, p. 47, http://www.gao.gov/new.items/d04873.pdf, viewed 20 August 2004.

45 Andrea Martino, 'Naval War College Enlists University of Maryland University College to Provide Online Graduate Degrees for Officers', Press Release, available at http://www.umuc.edu/events/press/news113.html.

46 Distance education modules can be in a variety of subject areas, whereas the non-residential course is limited to the same curriculum as the residential course.

institutes that are global by definition. The United Nations for example, offers 15 DL courses in peacekeeping related subjects[47] while the NATO Staff College offers partial attendance for separate modules to their senior course.[48]

Understandably, e-Learning is becoming increasingly popular with colleges already offering distance education. The advantages of e-Learning over traditional, paper-based courses, however, are enticing many others to embrace the delivery method. The Swiss Military College, for example, is currently considering developing digital and distance learning modules,[49] as are the Irish,[50] Chinese[51] and many others. Even more countries and consortiums have already implemented them.[52]

Singapore's Defence College (SAFTI), is developing what it calls *Knowledge Management*. This involves a combination of access to electronic information through their library portal as well as computer-based courses.[53] The global explosion[54] of these applications being used by residential students highlights the fact that e-Learning is not just about distance, or non-residential education, but also includes blended learning.[55]

Collaborative networks are the natural 'next generation' for IT enhanced PME. One regional example is the Asia Pacific Area Network (APAN), which uses Advanced Distributive Learning (ADL) to link 46 countries in security related concerns. An example of how APAN has already begun facilitating online masters programs to Defence College students is the Royal Thai Army's[56] Masters in Consequence Management from the UN's *University for Peace*.[57] Other examples include the UN's *Global Virtual University*, the US Army's *eArmyU*, and the *Partnership for*

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47 UN Institute for Training and Research Programme of Correspondence Instruction in Peacekeeping Operations.

48 For more on the NATO Staff College, see http://www.ndc.nato.int/about/about.html.

49 Dr Hubert Annen 'Action Research as a Method for Scientific Thinking and Acting in Military Pedagogy', in H. Florian (ed.), *Military Pedagogy – An International Survey*, Studies for Military Pedagogy, Military Science and Security Policy, Peter Lang, Germany, 2002, pp. 227–243.

50 Jerald Cavanagh and Mícheál Ó hÉigeartaigh, *E Learning in the Military College: How the Library and Educational Research Centre Can Play a Vital Supporting Role*, Working Paper NCIRL-002-2003, National College of Ireland, 2003.

51 For various articles on the Peoples Liberation Army 'informationizing' [sic] its PME delivery, see http://english.pladaily.com.cn/special/lanmu/4academy/index.htm.

52 Across most strata of US PME, Canada, Australia, the UK, and many more. For a specific example, see Professor A. Kadir Varoglu and Yavuz Ercil, *Virtual Classrooms*, Turkish Delegation of the NATO Training Group Working Group on Individual Training and Education Developments, 2000, http://www.kho.edu.tr/enstitu/aktiviteler/nato/public_html/sp17.doc, viewed 3 August 2004.

53 For more on SAFTI's KM program, see http://www.mindef.gov.sg/safti/SCSC/Index.htm.

54 Also known as the 'Internet Tsunami'; see D.S. Alberts, J.J. Garstka, and F.P. Stein, *Network Centric Warfare – Developing and Leveraging Information Superiority*, Second Edition, C4ISR Cooperative Research (CCRP), 2000, p. 250.

55 Blended learning involves both face-to-face classes and online learning. For more, see Chapter 6.

56 For more on the Royal Thai Army's National Defense Studies Institute, see C. Vilaphan, National Defense Studies Institute, Joint Staff College, The Joint and Combined Staff Officer Course, The Royal Thai Survey Department.

57 For more on the University for Peace, see their website at http://www.upeace.org.

Peace (PfP) *Consortium*,[58] which includes many contributors such as the *International Relations and Security Network*.[59]

The *Geneva Centre for Security Policy* (GCSP) is a Tier 3–5 level collaborative institute targeting international students. It was established under the Partnership for Peace program and its regulatory board has representatives from 32 contributing nations. It is proactive in delivering blended learning modules to the highest level of military leadership and diplomatic corps civilians.[60] Employing e-Learning for both its residential and distance students, the Centre also convenes symposia and courses at satellite locations around Europe. Their courses are deliberately modularised to suit students requiring flexible learning options.

Summary

This chapter briefly summarised the PME systems of Australia, Canada and the United Kingdom before reviewing emerging trends from the US and other developed nation PME systems. Common themes throughout the world include an increase in modularising courses to offer elective programs, a rapid shift to awarding postgraduate degrees, an increased acceptance of IT-enhanced non-residential courses, and the emergence of blended learning on residential courses. These changes stem not only from recent opportunities to improve PME quality but also in an attempt to resolve a host of challenges confronting militaries in the post-Cold War era. The next chapter synthesises these main challenges into common themes.

58 The PfP Consortium includes more than 350 Defence Academies and Security Studies Institutes from the 42 countries of the Euro–Atlantic Partnership Council (EAPC) region.

59 For more, see the ISN website at http://www.isn.ethz.ch/index.cfm.

60 For more, see the GCSP website at http://www.gcsp.ch/e/index.htm.

Chapter 4

PME Challenges

As academies, we will advise others to change, but we likely ensure that revolutionary change takes place most slowly within our own organisation.

– General Rokke, President National Defense University[1]

Addressing challenges is not always easy, but acknowledging them is the first step. The aim of this chapter is to synthesise the various PME challenges facing the NZDF and other similar militaries. The difficulties are divided into personnel and curriculum issues. Noting the emphasis of this study is on delivery, not content, the survey of curriculum difficulties highlights how some of these problems may be resolved by adopting a more flexible structure. The chapter concludes with a brief discussion of knowledge and human capital management.

Personnel

New Zealand, like most other small countries, suffers from a number of difficulties in providing high quality, senior military officer education. One of the biggest problems is size.[2] While being small has advantages, it also creates a number of problems when trying to meet differing student needs. As already discussed, students on the NZDF CSC often have partially completed qualifications, or no need for some elements taught.[3] The small size also makes it difficult to provide cost-effective world-class education, particularly at the Tier 4 level where as few as six officers require a course each year.[4]

Other challenges facing Western militaries, regardless of size, is the difficulty in releasing essential personnel from the workplace for long periods of education. For the NZDF, the seven-month[5] course means students are only seconded to PME with parent units carrying the vacancy. This problem has been exacerbated in the post-Cold War era of increased peacekeeping operations and, for many countries, the high operational tempo post-9/11. For similar reasons, most government agencies decline invitations to send students on long military courses, while the militaries themselves

1 General Rokke's Rule Number 5, 'Conference Report: Professional Military Education and the Emerging Revolution in Military Affairs', 22–23 May 1995, quoted in Lieutenant General Jay W. Kelley, 'Brilliant Warriors', *Joint Force Quarterly*, Spring, 1996, p. 108.

2 This issue is even more relevant to countries unable to justify their own PME colleges. Local examples include Fiji, Tonga, Papua New Guinea, and Brunei.

3 This may be due either to previous training and postings or because they will never need to apply those skills. Awareness education may be nice to have but the cost-benefit trade-off must be considered.

4 This is based on the current paradigm of selective student attendance on long, one-off courses.

5 Expected to increase to eight months in 2005, although this will only make the secondment harder for units to endure.

report difficultly in educating reserve officer corps with such drawn-out courses.[6] Shorter, continuous modules are the most popular alternative for the traditional staff, or higher courses.[7]

Fiscal constraints restrict the proportion of mid-career officers receiving PME. Some countries, such as the UK and Canada, are restructuring their PME system to ensure more officers receive ongoing education. In New Zealand, PME is largely optional with only a select few posted to formal Tier 3 or Tier 4 courses.[8] The throughput rates on PME courses vary from country to country. Canada has a stated policy of 'all means all', where they aim to provide Tier 3 PME to every officer of major (E). NZDF officers have access to post-graduate university but only 32 per cent attend a staff course.[9] While many other countries would like to increase their throughput rate, financial limitations often prohibit expanding the current model. A more cost-effective approach is needed if greater access is to be realised within existing budgets.

Another issue with personnel relates to changing expectations of younger officers. As will be explored further in the next chapter, the new generation of mid-career officers have different educational expectations to those nearing retirement. Even at the Tier 4 level, staff report student dissatisfaction in low technology environments.[10] Today's students expect current, high impact and concise presentations upon which they can construct meaning and relevance. For decades the civilian education sector has offered tailored modular education. This system has been adopted since the 1960s in larger militaries, but avoided by small ones.[11] Such electives often utilise civilian education providers.

New Zealand struggles to cultivate diverse research bodies and strategic level university education. While the two main civilian providers of military related education in New Zealand are good, they cannot provide the diversity and depth afforded by the larger international centres of excellence. The market for security research and study programs in New Zealand is limited. Until the NZDF CSC networks with global institutes, it will remain academically isolated.[12]

Curricula

From an academic perspective, Defence colleges face challenges in providing effective education in complex, abstract, social, and cultural subjects as well as

6 This assessment is based on various discussions with Australian, Canadian and New Zealand career planners.

7 As used by all ABCA militaries.

8 For example, over the past 30 years, the RNZAF averaged 28 new squadron leaders annually, yet only educated four or five on the NZ staff course each year (16 per cent). Based on data from RNZAF Lists.

9 This figure is based on average promotion rates of the three Services and the attendance on both the NZDF CSC and foreign courses.

10 Based on personal discussion with Directing Staff at the Australian CDSS in 2004.

11 It is worth noting that even medium sized colleges, such as the former Joint Services Staff Course in Australia and the Australian Army's Staff College at Queenscliff, offered elective modules.

12 New Zealand universities are already involved in global networks, which means the NZDC will network eventually by default—it is more a case of when and how.

inculcating affective domain values.[13] One example includes *teaching* operational and strategic art vice instructing their characteristics. Didactic lecture-centric curricula are ineffective for higher-level student learning.[14] Furthermore, the NZDF CSC does not have a research faculty and few professional educators.[15] In larger colleges, military staff are often appointed more on warfighting prowess than educational experience.[16] This often results in less-effective andragogical approaches,[17] greater instructivism, and less contructivism.[18] This situation arises mainly because of limited funding and is unlikely to change in the NZDF.[19] Optimising the quality of learning, with the funds available, is the challenge.

Western Defence colleges confront a number of dilemmas when structuring their syllabus. Some of these question how much emphasis to place on studying history or future; domestic or international issues; single Service or joint capabilities; command, leadership or management (staff work); learning and assessment; and civil qualification material compared with military specific material. While many of these issues differ between Tier 3 and Tier 4, an element of each vexes most course planners. For most militaries, this confusion often stems from not knowing exactly what a *standard* graduate should be.[20] Students attending staff and higher courses have diverse backgrounds and diverse outcome needs. This raises the question of why so many countries continue to force a single, all-compulsory course on their diverse group of senior officers.

> PME must increasingly become demand-driven as opposed to supply-driven. It may be useful to think in terms of a 'precision learning' paradigm in which students can tailor their educational programs to what they most need to learn, at a pace and level most appropriate to them.[21]

[13] Yavuz Ercil and Kadir Varroglu, 'Mental Models and Learning Processes', in Heinz Florian (ed.), *Military Pedagogy – An International Survey*, Studies for Military Pedagogy, Military Science, and Security Policy, Peter Lang, Germany, 2002, pp. 214–5. For more of the affective domain, see also Chapter 5.

[14] For more on this, see the next chapter's section on constructivism and the following chapter's discussion of online simulation and networked wargaming.

[15] This is changing in many ABCA colleges following recent reviews where educational faculties are being brought together with doctrine development centres and leadership think-tanks. Colleges in the UK and US also have a large representation of professional civilian educators on the staff.

[16] In Australia, for example, there are no designated Education Officer posts on the Directing Staff of either ACSC or CDSS. Separate cells and advisers provide educational guidance. By contrast, at JSCSC UK every military DS is paired with a civilian educator.

[17] The lack of andragogical approaches was identified in a study of ADFA's learning environment; Eric J. Stevenson, *Educating the Community's 'Cream': An Examination of the Military Training at the Australian Defence Force Academy*, Master's thesis, University of Canberra, 1995.

[18] These concepts are explored in greater depth in Chapter 5.

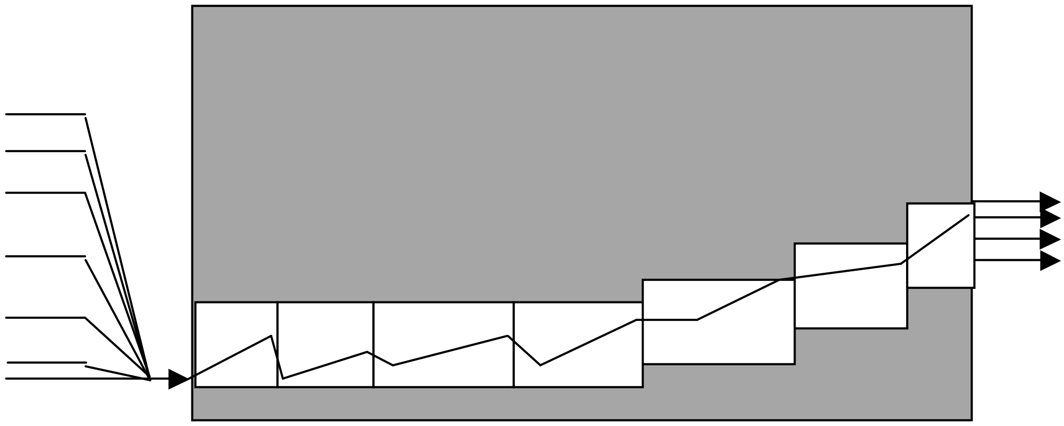
[19] Clare Bennett (ed.), *New Zealand Futures Assessment: Professional Development Implications*, New Zealand Defence Force, 2003, p. 4.

[20] Conducting an occupational analysis on Tier 3 or 4 graduates is very difficult and seldom completed. The NZDF is currently developing a Competency Framework that should assist in this process.

[21] S.H. Kenny, 'Professional Military Education and the Emerging Revolution in Military Affairs', *Air & Space Power Journal*, Vol. 10, Issue 3, Fall, 1996, p. 61.

This paper contends that all-compulsory staff courses devalue the standard of graduation.[22] Lecturers usually employ a 'lowest common denominator' approach with their presentations. The entry-level standard is generally lower than many students on the course (Figure 7), resulting in an 'inch deep mile wide' approach. Students who already have a solid understanding in the subject area, and possibly even credit for the university paper, are likely to feel unchallenged. In New Zealand, there is currently no provision for students to gain exemption from lectures, nor is there provision for them to pursue alternative study. Tailored PME is currently not an option at the NZDF CSC.

The current NZDF staff course is made up of many discrete modules. Some are stand-alone courses in their own right,[23] while others are simply standard modules (courses/papers) offered by a civilian university. In effect the staff course is just an all-compulsory series of external and internally delivered modules. The all-compulsory nature ensures all participants receive the same level of education—which is an advantage. But it also disadvantages many by unnecessarily repeating material for some and forcing others to endure elements that will never be of use in the future. In both cases, the time and money could be more effectively used to extend the students in new and more relevant areas. This begs the question why it needs to be an **all**-compulsory course.[24]



Candidates are reduced to the level of the lowest common denominator and progress through a number of largely discrete learning hoops, exiting at roughly the same level.

Figure 7 – Current Linear NZDF CSC Tier 3 Course

Advocates of the all-compulsory style course highlight the cross-pollination benefits. Students already knowledgeable in a subject bring first-hand, real world experiences to the learning environment. In this situation, other students can learn as much from the peer-to-peer discussions as they do from formal instruction. Indeed, cross-pollination is valuable, but currently it is based more on luck than management. There

[22] It is acknowledged not all academics agree with this assessment.

[23] For example, the ADF Introduction to Joint Warfare course, Law of Armed Conflict (LOAC) Level III training.

[24] The need for some elements to be compulsory is acknowledged.

is no protocol to determine how diverse the student body should be. When too diverse, discussions can become dominated by the few and make lurkers of the rest. Lurkers do not benefit greatly from passive absorption.

One of the best cross-pollination opportunities comes from foreign students. Hosting or sending officers to foreign courses is an 'instrument of influence'.[25] It is used by governments to facilitate international relations, but has an added benefit at the micro level as well. Graduates often exploit the opportunities afforded by networking with course mates. Furthermore, the process of acculturation, in theory, teaches tolerance and understanding. Discussions can also increase awareness of both own, and other, military capabilities. Such awareness increases personal interoperability on both peacekeeping and coalition operations.

The value of attending foreign courses is usually excellent, but limited. In most cases, it is restricted to only a few and selection is often dictated more on language ability than military experience. Returning officers are seldom posted to areas where their new international education can be fully exploited.[26] The paradigm of investing heavily in a few is a legacy of the current system's limitations. While NATO and PfP militaries enjoy the opportunity to cross-pollinate a greater proportion of their officer corps, other countries remain fiscally constrained.

Sending officers to foreign colleges has other problems, perhaps the most obvious being officers receive inadequate education of their own country's military or government system.[27] This is particularly important to New Zealand where the strategic culture and geopolitical environment is considered to be significantly different from even its closest allies.[28] The problem is not unique to New Zealand; some countries require officers to complete top-up modules on their return from foreign courses.[29] Another reported problem of studying abroad is the lack of domestic networking—particularly with other government departments. The increasing emphasis on National Effects-Based Approaches (NEBA)[30] means interagency cooperation is gaining importance.[31]

Increased interagency cooperation and Network Centric Warfare is reshaping the traditional *Strategic–Operational–Tactical* command structure. This previous construct was the basis for military planning and education towards the end of the

25 J.A. Cope, *International Military Education and Training: An Assessment*, Institute for National Strategic Studies, National Defense University, Washington, 1995.

26 This situation is particularly acute in the NZDF currently due to the shortage of personnel. Career managers do not have much flexibility to post officers to optimised positions as they would in a fully established, or even an over-established, military.

27 *NZDF Senior Leadership Interviews*, unpublished study conducted as part of Project APTUS, reported in Project APTUS Progress Report to Chiefs of Staff Committee (COSC), January 2004, p. 2.

28 Centre for Strategic Studies, 'Australia and New Zealand: The Defence Policy Gulf', *Strategic Briefing Papers*, Vol. 4, Part 2, November 2000, pp. 1–2.

29 Examples of these include Singapore (who also conduct back briefs about the foreign course) and the US (depending on which course the officer attended).

30 NEBA refers to Whole-of-Government solutions to security issues. For more, see New Zealand Defence Doctrine Publication (NZDDP–D), *Foundations of New Zealand Military Doctrine*, New Zealand Defence Force, 2004, p. 6-4; and Chapter 8.

31 This includes the recent popularity of civil police-led peacekeeping operations in the region.

Cold War and still influences Force structures today.[32] Yet the vertically aligned construct has recently been replaced with an offset concentric variant (Figure 8) to emphasise the impact of the *strategic corporal*, the *CNN effect*, and the reachdown capability afforded by technology.[33] Regardless of its shape, the three-circle paradigm is about to be replaced by new flatter approaches influenced by the Complex Warfighting construct.[34] Elements of the current model will remain relevant, but the new multi-dimensional manoeuvre (MDM) approach may be based more on chaos theory than linear military appreciations.[35] PME will need to reflect this emerging real-world approach to warfighting. But instead of reacting, it should be guiding the future. Today's graduates will lead tomorrow's military.

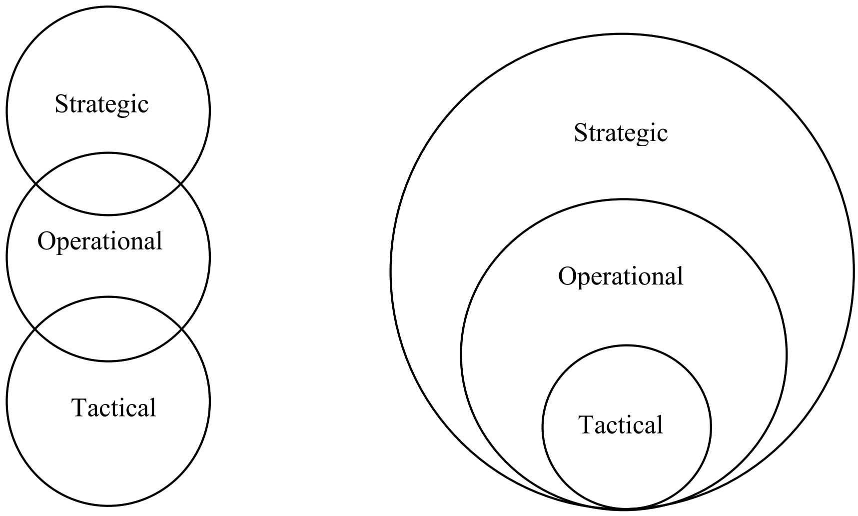


Figure 8 – Traditional versus Contemporary Levels of Military Operations

> The PME system is uniquely suited to the vital task of preparing future military leaders not simply to operate but thrive in such an environment …[36]

Knowledge Management and Human Capital Management

> In joint operations, what we do not know is as important as what we know. The predominant opinion is that one cannot know everything, but each military conflict seems to teach us that it would have been good to know

32 J.D. McCausland and G.F. Martin, 'Transforming Strategic Leader Education for the 21st Century Army', *Parameters*, Autumn, 2001, p. 21.

33 See NZDDP–D, *Foundations of New Zealand Military Doctrine*, Chapter 3.

34 James Moffat and David John Howard, *Complexity Theory and Network Centric Warfare (Information Age Transformation Series)*, CCRP Publications Distribution Center, March 2003.

35 See Major David Nicholls and Major Todor Tagarev, 'What Does Chaos Theory Mean for Warfare?' *Airpower Journal*, Fall, 1994, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj94/fall94.html, viewed 3 August 2004; or Major Susan E. Durham, PhD, *Chaos Theory for the Practical Military Mind*, research paper, USAF Air Command and Staff College, 1997, http://www.au.af.mil/au/awc/awcgate/acsc/97-0229.pdf, viewed 14 July 2004.

36 Kenny, *Professional Military Education and the Emerging Revolution in Military Affairs*, p. 53.

> more—more about the adversary, ourselves, the operational environment, and even factors that we did not identify until well into the conflict.[37]

Most militaries do not know what they know—or what they don't know.[38] The field of Knowledge Management seeks to improve both storage and access to an organisation's information. The transition to electronic filing has not been ideal, with many systems being either inefficient or ineffective.[39] In terms of PME, militaries need to ensure academic studies are appropriately stored and accessible to all who are authorised. Many of the leading security issues research institutes, such as RAND[40] and Stratfor,[41] have well-developed search engines for disseminating studies. Conversely, many other militaries have poor search facilities, or have yet to make their research available electronically.[42] Comprehensive frameworks for storing and searching research material are available commercially[43] and can be integrated with Learning Management Systems (LMS).[44]

> … the NZDF as a small military force, must develop a 'knowledge edge' and build and sustain the knowledge advantage of NZDF personnel. The right knowledge, to the right people at the right time, is a crucial force multiplier …[45]

Integrated Learning Content Management Systems (LCMS)[46] make it much easier to keep track of an organisation's collective knowledge—explicit and tacit.[47] Although they are designed to manage individual student learning and delivery management, they can also monitor how educated an organisation is and in which areas. Keeping track of this information is known as Human Capital[48] Management and is currently a growth area for many civilian businesses.[49] While acknowledging the value of education is useful, for small militaries it is vital to keep track of excesses or

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37 United States Joint Forces Command, *Doctrinal Implications of Operational Net Assessment (ONA)* Joint Doctrine Series, Pamphlet 4, The Joint Warfighting Center, 24 February 2004, p. 7.

38 This includes both access to stored information (electronic or hardcopy) and corporate knowledge of members, the latter being the hardest to record and manage.

39 Allan English, Angus Brown and Paul Johnston, *Are We Losing Our Memory: Decision Making in DND*, paper presented at the Canadian Military History Conference, Ottawa, 5–9 May 2000.

40 For more on RAND, see their website at http://www.rand.org.

41 Stratfor (Strategic Forecasting) is a Strategic Intelligence portal. For more, see http://www.stratfor.com.

42 In the old adage 'publish or perish', these organisations risk academic isolation in the information age. It is not the purpose of this study to highlight ineffective systems; however, further examples of good databases include the various e-journal portals such as *ProQuest 5000* or *Expanded Academic*.

43 There are many Commercial Off-The-Shelf (COTS) packages available. One example is offered by eSocrates. For more information, see their website at http://www.esocrates.com.

44 Viktor Barynkin, 'Informatization of higher military educational institutions: problem and solutions', *Military Thought*, Vol. 11, Issue 2, March–April 2002, pp. 38–43.

45 *Foundations of New Zealand Military Doctrine*, p. 10-2.

46 These metadata systems manage not only course material for learning but also student learning records.

47 For more on these see Lieutenant Colonel John Girard, 'Defence Knowledge Management: A Passing Fad?', *Canadian Military Journal*, Summer 2004, pp. 17–27.

48 'Human capital is the combined knowledge, skills, innovativeness, culture, values and ability of the NZDF's people', *Foundations of New Zealand Military Doctrine*, p. 10-2.

49 Carla O'dell and C. Jackson Grayson, *If Only We Knew What We Know: The Transfer of Internal Knowledge and Best Practice*, Free Press, 1998.

weaknesses in specialised areas.[50] Several militaries have already adopted LMS to keep track of their human capital[51] while others are establishing Chief Learning Officer (CLO) departments similar to Chief Information Officers (CIO) now prevalent in most large organisations.[52] 'Unlike its distant cousin Information Management, knowledge management is simply not possible without people.'[53]

Summary

There are a number of challenges confronting PME in the NZDF. Personnel problems include small target populations for courses, difficulty in releasing personnel for long periods and an increasing need to expose more officers to PME. Curriculum problems centre on improving student learning in complex areas such as operational and strategic art, selecting the right subject balance in all-compulsory courses to produce a 'typical graduate', and using linear educational constructs while the 'real world' shifts toward multi-dimensional manoeuvre in complex warfighting environments.

The past decade has seen a rise in coalition peacekeeping and combat operations, particularly with the Global War on Terror. Increasing international student mixes in PME should improve personnel interoperability and improve cross-pollination benefits for learning. Limiting overseas education to only a few officers risks over-investment in a small pool of personnel, while exclusive use of foreign courses compromises national awareness and networking. A balance is required between giving more officers an international education and ensuring a domestic focus is maintained.

The NZDF has only rudimentary methods of managing PME-related human capital. Improvements in the IT sector, and concurrent developments in adult learning, mean higher education is advancing rapidly. Military education has the opportunity to tap into these new approaches to exploit increased learning as well as human capital management. The next two chapters examine contemporary understanding of adult learning and developments in educational technology respectively.

> Change is difficult. Big Changes are more difficult. The adoption of NCW will involve significant, if not fundamental changes .… A hard look at our whole approach to education and training is required. Given the pace of change, education and training will need to be continuous and closely integrated with day-to-day activities. Distance learning and on-the-job training, employing sophisticated tools embedded in operational systems, will become the norm.[54]

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[50] Examples could include linguists or regional experts on specific South Pacific Islands where the NZDF could be deployed at short notice for disaster relief or peace enforcement operations.

[51] Examples include the ADF's DOMAIN and the UK's DELDMC. In the US, HCM systems allow targeted selections with Just-In-Time Training (JITT) for short notice deployments. See Jack Battersby, 'Tying e-Learning Together', *Military Training Technology*, Vol. 8, Issue 1, 1 January 2003, http://www.mt2-kmi.com/archive_article.cfm?DocID=225, viewed 3 August 2004.

[52] Richard Baskin and Dean Schneider, 'Learning as a Weapon System', *Air & Space Power Journal*, Vol. 17, Issue 2, Summer, 2003, p. 101.

[53] Girard, 'Defence Knowledge Management', pp. 21–22.

[54] Alberts, D.S., Garstka, J.J. and Stein, F.P., *Network Centric Warfare – Developing and Leveraging Information Superiority*, Second Edition, C4ISR Cooperative Research (CCRP), 2000, p. 229.

Chapter 5

Adult Learning

> *Tactics, evolutions, artillery, and engineer sciences can be learned from manuals like geometry; but the knowledge of the higher conduct of war can only be acquired by studying the history of wars and battles of great generals and by one's own experience. There are no terse and precise rules at all ...*
>
> – Napoleon Bonaparte[1]

Understanding the difference between education, training and learning is fundamental to understanding why future PME is going to be radically different to how we know it today. The aim of this chapter is to summarise key issues in adult education as they apply to PME. It begins by introducing relevant terminology before summarising theories in maximising learning. This is then contrasted with current university teaching methods before considering the next generation of Defence college students. The chapter concludes with a section on emerging university models.

Train for certainty, educate for uncertainty.
– General Schoomaker

Training is the repetition of defined knowledge, skills, or attitudes to achieve competency. Examples of training include procedural tasks such as emergency drills or quick response behaviours. Conversely, *education* is the acquisition of guiding principles and concepts. Unlike training, education allows application into new and unique situations as well as development of better methodologies. In short, training instructs *what* to think while education teaches *how* to think. Significantly, formal education and training is imposed on an individual by a higher authority. The pace, direction, and value of the process are largely decided by the teacher or instructor.

Modern military training methods are based on systems developed by the US Army in World War II. Because of the war, there was a need to provide intensive training to high volumes of personnel in very a short time frame. This systematic approach is competency based and appeals to the military's definitive nature. It is efficient for training animals, and recruits, but at the higher level of education, such Pavlovian approaches are inappropriate. The shift toward learner-centric education is particularly difficult for Tier 3 colleges using the course to summatively grade students with criteria referencing.

> Constructivism is a theory of learning which claims that students construct knowledge rather than merely receive and store knowledge transmitted by the teacher.[2]

1 Quoted in Rudolf von Caemmerer, *The Development of Strategical Science During the Nineteenth Century*, Hugh Rees, London, 1905, p. 275.

2 Mordechai Ben-Ari, 'Constructivism in Computer Science Education', *Journal of Computers in Mathematics and Science Teaching*, Vol. 20, Issue 1, 2001, p. 45.

Unlike training, or even traditional education, constructivism[3] is about what is learned, not what is taught. Based on the early work of Dewey, Bruner, Piaget, and Vygotsky,[4] the contemporary Zeitgeist of constructivism 'emphasizes [sic] the importance of experiences, knowledge construction and learning process that puts students at the centre of learning'.[5] Critically, it shifts the emphasis of the learner from recipient to constructor of knowledge and understanding. Learners use metacognitive skills to maintain autonomous control in shaping their understanding of a topic.[6]

Constructivism is well suited to emerging educational technologies such as computer simulation and Multi User Domains (for example online chat rooms), e-journals, and search engines where contemporary global issues are mixed with multi-disciplinary curricula in the learning process. Immediate feedback and rapid acquisition through hypermedia[7] is also complementary to constructivist approaches. Conversely, behaviourist methodologies such as rote learning facts and teacher-directed (top down) didacticism are considered superficial and ineffective—despite having a place in some situations.

Learning results from both education and training, in any of the three domains,[8] but also occurs informally in everyday situations—watching television, social interaction, surfing the Internet, or at work. Many people empathise with Winston Churchill's comment 'I am always ready to learn, but I do not always like to be taught.' Unfortunately for him, and until now, formal education was often restricted to didactic pontificating by educators who were trapped in the traditional paradigm of throwing knowledge at students and hoping some would stick.

Any teacher who can be replaced by a computer, deserves to be.

While the art of inspiring others to learn can be traced back to the techniques of Socrates,[9] its purist application is often restricted to only the best practitioners. This is potentially about to change. Technology, combined with an improved understanding of adult learning (andragogy), is set to revolutionise learning opportunities. The imminent explosion in learning opportunities through various styles should force

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3 Constructivism has different meanings in other academic disciplines. In this case it is obviously referring to the educational and psychological use.

4 For more on each of these early contributors to constructivism, see the various links on the Charles Sturt University web page on constructivism, http://hsc.csu.edu.au/pro_dev/teaching_online/how_we_learn/constructivism.html, viewed 27 September 2004; or M.D. Roblyer and Jack Edwards, *Integrating Educational Technology into Teaching*, Second Edition, Merrill/Prentice-Hall, New Jersey, 2000.

5 Professor Ahmed Ali, 'Applying Constructivism in a Traditional Environment', *Academic Exchange*, Spring, 2004, p. 72.

6 Ken T.K. Neo and Mai Neo, 'A Constructivist Learning Experience: Reconstructing a Website using Multimedia Authoring Tools', *Australian Journal of Education Technology*, Issue 17, No. 3, pp. 330–350.

7 Hypermedia refers to the linking of information in electronic documents, where a user can click on a hyper-texted word (often underlined and in a different colour), icon or image to explore an area further.

8 Cognitive, psychomotor or affective—see later in this chapter for more detailed explanation.

9 The Greek philosopher was renowned for teaching through questions. He understood the art of 'drawing out' (*educere* from *ex–* 'out' + *ducere* 'to lead') understanding from a student rather than trying to put knowledge in. Today the approach is known as the Socratic method of teaching.

higher standards. At all levels, students will be challenged to improve their understanding in a way that is optimised toward their learning style. This will increase both the efficiency and effectiveness of their learning. Learning providers will be forced to transform or perish.

Don't teach me, let me learn.

Military conservatism and institutional inertia means converting over to constructivism is difficult.[10] Many directing staff at Defence colleges are expert in their profession of arms, and most have previous training experience, but few have an understanding of educational psychology. The solution for many is to default back to their comfort zone of instructional methodologies.

> … we need to recognise the strong tendency in military culture to stay with mainstream behaviourist and cognitive techniques and teaching as a transfer of knowledge from instructor to learner based on competencies.[11]

Higher level PME should not have a prescriptive syllabus. Also, if truly constructivist, it will not specify rigid delivery formats. Using adult learning principles, the students will draw on their previous experiences and research to assimilate new information presented by expert lecturers. Most learning will occur not in the lecture room, but in the discussions and problem solving application of theories in war games or simulations.[12] Ideally, students will be able to choose their preferred learning style from a variety of options. The pace, depth and direction will be student driven, not institutionally imposed. The inculcation of military discipline in executive level education is not only unnecessary, it is destructive to innovation. Such variety in learning options, however, needs either one-on-one mentoring or a very large pool of alternate forums—a system of systems.

> Didactic acquisition (based on objectives) has utility in introductory level courses. Conversely, a constructivist (participative) approach is more applicable in advanced work that would usually be centred on real, authentic problems.[13]

Levels of Learning

Learning is divided into knowledge, skills and attitudes. These are more correctly known as the cognitive, psychomotor and affective domains, respectively. Education at staff colleges relates primarily to the cognitive and affective domains. Both of these are broken into several levels. Based on the landmark work of Benjamin Bloom, the cognitive domain taxonomy articulates the levels through which a student progresses.

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10 R. Baskin and D. Schneider, 'Learning as a Weapon System', *Air & Space Power Journal*, Vol. 17, Issue 2, Summer, 2003.

11 Keith Thomas, *Leadership Development: A Case Study of the Relative Effectiveness of Educational Processes*, Doctoral Research Paper, La Trobe University, Australia, 2002, p. 8.

12 Known as a 'persistent virtual military world', in James Schneider, 'Transforming Advanced Military Education', *ARMY*, January 2005, p. 22.

13 Thomas, *Leadership Development*, p. 8.

Bloom maintains students must achieve a solid foundation at each level before progressing to the next.[14]

Knowledge. At this level a student is expected to merely recall facts.[15] A popular method of achieving this level is through rote learning. Syllabi indicate this level using operative verbs like ‘list’, ‘state’ or ‘recall’. PME examples of *knowledge* include reciting the principles of war or the Joint Operations Planning stages.

Comprehension. To satisfy this level a student must understand the material. Typical operative verbs include ‘describe’, ‘discuss’, ‘explain’ and ‘identify’. PME examples include syndicate discussions where students discuss material taught in lectures or learned through readings. Unlike knowledge, *comprehension* is sometimes the highest level to which a topic is taken.

Application. Competency at this level is demonstrated by the learner employing the knowledge in a new and unique situation. Typical operative verbs include ‘apply’, ‘demonstrate’, ‘employ’, ‘illustrate’, ‘interpret’, ‘solve’, ‘use’ or ‘write’. PME examples of *application* include relating learning in lectures to real-life problems experienced prior to the course or by relating the material to a different setting. This is the level required for graduation on most military training courses. Higher-level education, such as staff and senior colleges, should continue to higher levels of the taxonomy.

Analysis. A student who satisfies this level can break a concept into constituent parts. Typical operative verbs include ‘categorise’, ‘compare’, ‘contrast’, ‘differentiate’, ‘discriminate’ or ‘distinguish’. This level is often tested in the planning component of a staff paper.

Synthesis. Having broken the concept into parts at the analysis level, a learner must reassemble the pieces into a new situation. Operative verbs include ‘arrange’, ‘assemble’, ‘compose’, ‘construct’, ‘create’, ‘design’, ‘develop’, ‘formulate’, ‘manage’, ‘organise’, ‘plan’, ‘prepare’ or ‘propose’. An example of *synthesis* in higher military education is the proposal of new solutions in an essay or staff paper.

Evaluation. Competence at this level implies the greatest depth of understanding. High-level education should always achieve this level. Typical operative verbs include ‘appraise’, ‘argue’, ‘assess’, ‘compare’, ‘defend’, ‘judge’, ‘predict’, ‘rate’, ‘support’ and ‘evaluate’. Examples of this level in PME include management reviews of civilian companies or evaluating famous leaders. Some activities are denied this level due to the abundance of existing evaluation studies. An example of this is when students are expected to evaluate well-documented historic campaigns. This is why higher end PME learning (staff and war colleges) should include research projects on emerging topics.

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[14] Benjamin S. Bloom (ed.), *Taxonomy of Educational Objectives: The classification of Educational Goals – Handbook I, Cognitive Domain*, Longmans Green, Toronto, 1956.

[15] Also known as ‘surface learning’. For more, see Paul Ramsden, *Learning to Teach in Higher Education*, Routledge, London, 1992.

Affective Domain

The affective domain of learning is also categorised into levels. David Krathwohl developed an affective domain taxonomy to explain how attitudes and values are developed, inculcated, and cemented.[16] This process is critical to success in a military institution. For centuries the military has inculcated selected values into personnel through unquestioned activities and techniques.[17] In many cases, instructors never fully understood the connection between the activities and inculcation of values—they just knew it worked. In the modern era of fiscal governance and accountability many such activities have been challenged by civilian accountants who see no tangible return for the expense. Consequently, many such uniquely military activities have eroded in recent years. Lacking empirical data, or even the necessary sociological understanding, traditionalists have struggled to justify retention of such inculcators. Typical examples include the reduction in messes and the cuts to unit adventure training budgets. Neither education, nor *esprit de corps*, appears as an asset on financial balance sheets.

Education and training institutions are valuable environments to control the inculcation of traditional military values. As already discussed, the connection of many activities with the affective domain was seldom, if ever, articulated. Today, as syllabi come under ever-critical reviews, it is essential that linkages to affective learning are made. Many staff colleges fail to include attitudinal goals, yet they are espoused in their charter, handbook, and in posters on the walls. Without the connection, successive curriculum reviews continue to lose focus on the high-level aims of the course.

The challenge in promoting affective domain learning through blended and flexible PME must be addressed. Residential courses provide the ideal environment for interpersonal skills development and the inculcation of affective domain learning. Some software companies claim they can teach attitudes and values—possibly more effectively than classroom teaching can. The field is known as *Affective Computing* and the packages are referred to as *Affective Learning Technology*. While much of the work centres on pedagogy, there are some products targeting Defence college level education.

Affective Learning Technology has a number of applications. In a simple variant, the software provides an electronic personality profiling similar to the Myers–Briggs psychometric instrument. This system is primarily used for pre-employment screening but can also front-end courses to help tailor affective learning. Through complex simulations, role-playing and other interactive e-Learning methods, attitudes and values can be measured and modified. Typical areas that could be targeted include workforce alignment, ethics, safety awareness, tolerance to change, loyalty and teamwork.

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16 David Krathwohl, Benjamin Bloom and Bertram Masia, *Taxonomy of Educational Objectives – Handbook II: Affective Domain*, David McKay Co, New York, 1964.

17 For more on this, see Volker Franke, *Preparing for Peace – Military Identity, Value Orientations, and Professional Military Education*, Praeger Publishers, Westport, 1999; Jason D. Baker, 'An Investigation of Relationships Among Instructor Immediacy and Affective and Cognitive Learning in the Online Classroom', *Internet and Higher Education*, Vol. 7, 2004, pp. 1–13.

Defence College courses can exploit Affective Computing to significantly improve a number of subjects. For example, command, leadership and management at either the operational, strategic or even grand strategic level can all be enhanced through such technology. Software such as *Virtual Leader*[18] simulates virtual meetings where complex interpersonal problems and conflicting business issues need to be resolved. Similar scenarios could easily be adapted for operational settings where a commander must consider conflicting ethical, legal, and leadership dilemmas.

> Virtual Experience Interactive Learning Software, or VEILS, 'weaves a tapestry from learning theory, gaming theory, filmmaking, psychology, and computer science'.[19]

Traditional development of the affective domain through e-Learning is still possible. Areas such as teamwork, loyalty, patriotism, patience, tolerance and so on can still be developed through interactive engagement with other students online. Many of these attributes are needed just as much, if not more, in an international forum where students share ideas and work collaboratively.

Affective learning remains important at all levels of PME. While certain attributes will no longer need to be addressed at higher levels, such as teamwork for example, other new ones may emerge. Acculturation and inculcation of joint values is a goal of existing PME, and in New Zealand has been specifically identified as an area demanding attention.[20] The transition towards a modularised and tailorable system must ensure this oft-overlooked domain is not forgotten. Affective learning must be a stated determinant when designing course structures for a Global Staff College.

Interactivity and Experiential Learning

The speed students progress through the learning levels is also important. A significant factor in the acquisition of speed and quality of learning is the environment. Based largely on the work of David Kolb, *experiential learning theory* provides a spectrum of learning environments. While learners can differ in their preferred learning environment, most benefit from increased immersion and multi-sensory experiences.[21] The following categories differentiate learning environments:

Field independent. This involves learning outside of the context in which it naturally occurs, eg. videos, books, and lectures. To make it work, learners must contextualise the learning through discussion. Field independent learning uses 'primarily brain-

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[18] Virtual Leader is a software package developed by SimuLearn. For more, see their website at http://www.simulearn.net/SimuLearn/standalone.htm.

[19] Sam S. Adkins, 'Beneath the Tip of the Iceberg: Technology Plumbs the Affective Domain', *T+D*, Alexandria, Vol. 58, Issue 2, February 2004, pp. 28–34.

[20] Ministry of Defence, *Review of Accountabilities and Structural Arrangements (RASA) between MoD and NZDF*, an internal (unpublished) report.

[21] For more on Kolb's Theory, see David A. Kolb, *Experiential Learning: Experience as the Source of Learning and Development*, Prentice-Hall, New Jersey, 1984; or David A. Kolb and R. Fry, 'Toward Applied Theory of Experiential Learning', in C.L. Cooper (ed.), *Theories of Group Process*, John Wiley, London, 1975.

antagonistic categorical memory with minimal contextual or procedural memory'.[22] This is traditionally the primary approach taken by residential staff colleges.

Interactive abstract learning. This includes representations but not the real thing, such as low quality computer simulations.

Interactive concrete learning. The third level uses the actual skills, materials, and tools of the activity, but at an artificial off-site location.

Immersion. This involves simulation in a richly constructed environment involving multi-sensory learning. This is an area where e-Learning virtual simulations allow students to experience and test models, concepts and theories in settings where they would otherwise be impractical. Examples include high cost, resource intensive, life threatening or hypothetical scenarios where 'other variables' can be isolated.

Real life experiences. Learning on-location at the workplace. These include excursions and field trips. Staff colleges routinely employ study tours into work places, and on occasion may also involve limited work-experience. In the case of the NZDF CSC (or NZDC), this could involve conducting a wargaming exercise in the actual operations room of Joint Force Headquarters.

Pedagogy versus Andragogy

> The pedagogical model assigns to the teacher full responsibility for making all decisions about what will be learned, how it will be learned, when it will be learned, and if it has been learned.[23]

Although many pedagogical principles apply equally for adults as they do for children, there are a number of fundamental differences between the way the two learn. The study of these differences is called *andragogy*. Based largely on the work of Malcolm Knowles, andragogy makes significant advances in the way modern educators guide adult learning. Adult learning is differentiated from children and teenagers in the following ways:[24]

All men who have turned out worth anything have had the chief hand in their own education.
– Walter Scott

Autonomous and self-directed. Adults prefer to be free in directing their own learning. Their teachers act as facilitators and mentors allowing the students to work on projects reflecting their interests. Teachers do not supply the students with facts but guide learning—teaching them how to learn, not what to learn. This aspect is often overlooked in PME courses.

Motivation. Adults have a good understanding of what they want to achieve and need to understand the relevance of material to meet their goal. Good adult learning

22 Eric Jensen, *Introduction – The Accelerated Learning Brain-Based Approach*, unpublished course notes, 1996, p. 19.

23 Malcolm Knowles, *The Adult Learner – A Neglected Species*, Gulf Publishing, Texas, 1986, p. 52.

24 For more on each of these, see ibid., pp. 55–61.

facilitators will emphasise the relevance and applicability of the material. This is colloquially known as the What's In It For Me (WIIFM) principle. Adult learners are also motivated through interest and recognition. Positive reinforcement through feedback and consistency with grading matching performance.[25]

Environment. Adults are sensitive to the feeling or tone of a session. Facilitators need to establish friendly and comfortable climate for learning. 'Old-school' military instructors see this as contrary to promoting strong character and aggressive competition. While this argument applies mostly to the Army, the course culture needs to reflect the material. A staff course is not a field training exercise. Higher-level academic learning can only excel in a beta–theta wave environment.[26] The level of tension must be adjusted to meet the level of importance. Higher importance requires higher levels of tension and stress; however, people learn best in low to moderate levels. High stress is a barrier to learning.

Respect. More than children, adults need to be shown respect. Facilitators (Directing Staff) must acknowledge the wealth of experience the participants bring to the college. Those with experience and knowledge should be encouraged to share their expertise with the group.

Challenge. The course should always challenge the participants. It needs to be high enough to promote learning but not so high as to invoke frustration. With such diverse experience levels on the staff course, modularised and individual learning is essential.

Baby Boomers, Generation X, Y, and e

Baby-boomers are those born in the 15 years following World War II.[27] Their parents were greatly influenced by the war. Mothers stayed at home, fathers worked, there was a strong collectivist identity, and the outlook was positive. In their teens (during the Vietnam War era), however, they rebelled, questioning authority and opposing all traditional beliefs. As they matured, they re-embraced the institutions they had earlier rejected. These are now the senior leaders of the NZDF.

Generation X are the children of the Baby-boomers.[28] They were born between 1960 and 1980[29] and are characterised as self-reliant, sceptical, and reluctant to commit to relationships—personal or professional.[30] Nearly half of the marriages during this period ended in divorce, meaning most Generation Xers grew up in an environment of

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25 This has been identified and addressed in the USAF. For more, see Dr James Smith and Colonel Douglas J. Murray, 'Valuing Air Force Education and Training: Faculty Duty and Leader Development', *Air & Space Power Journal*, Winter, 2002, pp. 79–86.

26 Brain attention levels are categorised in four brainwave states. Alpha, high frequency, is active and stressful, restricting long-term memory access, and relying on recall of rote learned facts only. Beta wave states are characterised by more relaxed environment where optimum learning takes place. Theta-wave state is very relaxed and provides great creativity. The final state, Delta, is deep sleep.

27 The definition of these categories varies slightly from study to study. The information presented here is a generic compilation and is intended as a brief summary only.

28 For more, see Volker Franke, *Preparing For Peace – Military Identity, Value Orientations, and Professional Military Education*, Praeger Publishers, Westport, 1999.

29 Variations in the exact dates exist; some identify the generation with key personalities born in 1964. It is also sometimes known as the 13th Generation in the US.

30 Morris Janowitz, *The Political Education of Soldiers*, Sage Publications, Beverly Hills, 1983.

joint custody with both parents working. They raised themselves on a diet of TV, video games, and personal computers. They watched more hours of television each day than they spent in the classroom, and the television they saw was both violently graphic and real-time. They have an attention span of about 20 minutes (the maximum interval between advertisements on television).[31] Today, Generation Xers demand up-to-the-minute and entertaining information. 'Nor, of course, is this generation used to the long periods of solitary study and reflection over the liberal arts disciplines generally.'[32] Research also shows that Baby Boomers, especially military ones, do not understand the Generation X culture of WIIFM (What's In It For Me).[33] This disconnect is also likely to hinder understanding and support for modernising PME delivery systems. Corporate inertia is often exacerbated by misunderstandings between those who authorise change and those who seek change. 'Prejudice against innovation is a typical characteristic of an Officer Corps which has grown up in a well-tried and proven system.'[34]

The successors to Generation X were dubbed Generation Y, but the post-modifier is often replaced by the ubiquitous e. This new label recognises the significant impact Information and Communication Technology (ICT), and in particular the Internet, is having on the emerging workforce. While these advancements are engulfing all strata of the military, the dependence is most pronounced on those who have been brought up almost exclusively with it—*digital natives*. Most of those in the current education system are developing their cognitive skills with the aid of computers. In 2000, a study by the Organisation for Economic Cooperation and Development (OECD) found 85 per cent of 15 year olds in Australia had access to a computer every day, while 31 per cent accessed the Internet every day and a further 32 per cent used it 'a few times a week'.[35] While these figures are dated and apply to Australian demographics, the statistics on New Zealanders are even more dramatic. 'An estimated 95 per cent of [NZ] high school students now own a cellphone.'[36]

New Zealand ranks among the highest IT users in the world. A 2003 survey of 32,000 individuals across 32 countries found New Zealand to have the highest number of Internet users, per capita, in the world.[37] This achievement reflects the New Zealand Government's targeted policy of being a world-class knowledge society and having an

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31 Experts contend this generation require interaction every three to five minutes to remain focused in the learning process. Michelle L. Hankins, 'Distance Learning Providers Do Their Own Homework', *Signal*, Vol. 54, Issue 5, January 2000, pp. 24–26.

32 General Josiah Bunting III, 'Liberal Education, the Study of History and Generation X', in Elliot Converse (ed.), *Forging the Sword – Selecting, Educating, and Training Cadets and Junior Officers in the Modern World*, Imprint Publications, Chicago, 1998, p. 384.

33 Alisen Iversen, 'Professional Military Education for Company Grade Officers: Targeting for "Affect"', *Aerospace Power Journal*, Summer, 2001, pp 58–64.

34 Field Marshal Erwin Rommel, quoted in Baskin and Schneider, *Learning as a Weapon System*, p. 103.

35 OECD Program for International School Assessment for 2000, quoted in Dr Alison Elliot, 'IT in Schools', *Information Age*, Australian Computer Society, June 2004, p. 14.

36 NZPA, 'A Cellphone is a Girl's Best Friend', *New Zealand Herald*, 11 March 2004.

37 Taylor Nelson Sofres (TNS) plc, 'Government Online: An International Perspective', *Global Summary*, 2003, http://www.tns-global.com/corporate/Doc/0/JF206RCSIND4H7QIOVKUGST011/21451_Global+Report_Final.ppt.

IT enhanced education.[38] Their vision is for a 'networked, flexible education system offering accessible, relevant, high quality learning opportunities to all New Zealanders'.[39] The prodigy of this education system are today's recruits and tomorrow's military leaders.

While computers are exponentially increasing learning in schools, their delivery of postgraduate education is currently still limited. The model proposed in this paper is not for the computers to *teach* senior military officers, but to facilitate communication between geographically dispersed classes and enable epistemic research. Computers also have a place in facilitating globally networked wargaming between colleges and role-playing command, leadership and management scenarios. These advantages, coupled with increasing student expectations of IT, mean that the shift to network centric PME is inevitable.

Tertiary Education Teaching Methods

Tertiary education delivery methods have evolved more by limitations than opportunities. The legacy lecture format can be traced back to ancient times in terms of mass communication; the earliest recorded university lecture was held at Cario's Al-Azhar University in AD 975.[40] For most of history, this system was the only practical way of achieving efficient mass communication. Sadly, however, it fails to maximise learning by minimising learner interaction and relying primarily on the auditory sense. Recent research highlights the reducing popularity of university lectures among the current student population.[41]

As is now well documented, students have a variety of 'approaches to learning', or learning styles.[42] Nearly all prefer a mixture yet some are predominantly visual, while others are auditory, and the rest are kinaesthetic. More complex analyses can be made with sophisticated instruments. Educational institutions, serious about providing quality learning environments, conduct learning style surveys on their students prior to the course—especially when the aim is to develop the weaker styles. Targeting the course delivery to suit the students maximises learning permanence. Traditionally, educational systems focused on teaching *pupils* what to think, not how to think. Recent cognitive and educational psychology studies, however, have shown classical pedagogy is inefficient—particularly for adults.

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38 For the various examples of these see the New Zealand Government: *e-Government Strategy*; *Digital Strategy for the National Library of New Zealand*; *Connecting Communities Strategy*; *Project Probe*; and *Statement of Tertiary Education Priorities 2003/04*, August 2003.

39 New Zealand Ministry of Education, *Interim Tertiary e-Learning Framework*, March 2004, p. 2.

40 Even earlier examples of mass lectures exist outside the university environment, for example religious sermons.

41 Professor Craig McInnis, Dr Richard James and Robyn Hartley, *Trends in the First Year Experience*, Commonwealth Department of Education, Training and Youth Affairs (DETYA), 2000, p. 33, http://www.dest.gov.au/archive/highered/eippubs/eip00_6/fye.pdf, viewed 3 August 2004.

42 For more, see Julie Cotton, *The Theory of Learning*, Kogan Page, London, 1995; Julie Cotton, *The Theory of Learners*, Kogan Page, London, 1995; or Heather Fry, Steve Ketteridge and Stephanie Marshall, *A Handbook for Teaching and Learning in Higher Education*, Kogan Page, London, 1999.

Technology is fast changing the way educational institutes deliver their courses. While most undergraduate programs still revolve around large-group lectures,[43] postgraduate classes tend to be more learner focused. Research conducted by Lewis Elton has found two new approaches—individual[44] and group learning[45]—have evolved since World War II, and he attributes the developments to technology.[46] While these approaches are not entirely new, their prevalence as a normative model is widely accepted.

Defence College Teaching Methods

Most Defence colleges use a variety of teaching methods. The standard approach, however, involves individual pre-reading followed by a formal presentation by a high status, subject matter expert, and then a small-group discussion—known as the Modified Oxford Tutorial System.[47] Group or individual research and student presentations often follow this. One of the major strengths of such interactive learning is the so-called cross-pollination of peer learning. Furthermore, group learning is often a secondary goal of military education because of its value in the workplace. Like other civil–military differences, group learning does not sit well with the competency-based (individual) assessment regimes of universities.

Unlike undergraduate classes, or even many postgraduate courses at civilian universities, Defence colleges have a unique student body. Most are senior military officers with at least some experience in many of the areas being examined.

> Their age and years in service mean they have a great deal to share and a wide range of experiences to draw on for applying 'lessons learned'. They require significantly less structure and formality than many younger, less experienced students might.[48]

Other popular methods of teaching in Defence colleges include the use of war games, simulations and hypotheticals. These are usually employed to consolidate learning following traditional instructional modes, yet are particularly valuable not only because they are interactive but because they employ the higher levels of Bloom's taxonomy. Significantly, all three can be greatly enhanced with networked technology. Overall, the typical learning methods employed in Defence colleges are appropriate for the majority of the students given the unique student body and subjects taught. But it is still a top-down system.

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43 For example conventional lectures and taught lessons, film and video presentations, and educational broadcasts (including passive monologue web casts).

44 Typical examples include directed study of texts, study of open-learning materials, and mediated self-instruction.

45 These include class discussions, seminars, group tutorials, war games, simulations, and group projects.

46 Lewis Elton, *Teaching in Higher Education – Appraisal and Training*, Kogan Page, London, 1978.

47 For more on the development of the tutorial system at Oxford University, see Will G. Moore, *The Tutorial System and Its Future*, Pergammon Press, 1968.

48 Robert H. Dorff, 'Professional Military Security Education: The View from a Senior Service College', in *Educating International Security Practitioners – Preparing to Face the Demands of the 21st Century International Security Environment*, Strategic Studies Institute, US Army War College, July 2001, p. 29.

Military students have a low tolerance to poor quality presenters.
– James Dempsey

While most colleges have good delivery methods, they are still material-centric. Many courses lack the flexibility for students to explore personalised programs or to learn in their preferred learning style. This criticism is perhaps unfair for most small militaries unable to provide such diversity. But emerging technologies in the civilian education sector now permit colleges to expand their subject pool. Students can now select courses tailored to their preferred learning style and topics more relevant to their personal needs. The future of higher education is set to 'change beyond recognition'.[49]

The Future of Higher Education

Modern higher education in New Zealand traces its direct lineage back to Oxford and Cambridge universities in the 13th century. These were joined by St. Andrews, Glasgow and Aberdeen in the 15th century and Edinburgh in the 16th, while others were proliferating on the European continent and in the US. In those early days, such education was privately funded, locally focused and only for the social elite.[50] In the past century numerous newer universities emerged, offering subsidised and more egalitarian education.[51] The traditional model was unbalanced in the past decade with the explosion of polytechnics seeking university status. This phenomenon was observed not only in New Zealand, but also in Australia, the United Kingdom, and elsewhere around the world. Yet none of these changes compare with the revolution about to occur.

The 'sandstone' versus 'redbrick' rivalry is now being sidelined by the arrival of virtual universities. Of greatest significance is the return to personalised education. When the traditional universities began opening their doors to greater student numbers, the teaching methods evolved to mass lectures and seminar discussions. Interestingly this model was adopted for staff colleges even when the class sizes did not necessarily justify it. The didactic approach to higher education became entrenched and has remained unchallenged—until now.

Eddie Blass, of Cranfield University, has identified emerging and future models from the normative construct. Her analysis postulates three types of universities evolving from the residual and dominant models. These include the corporate, virtual and global universities (Figure 9).

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49 Professor Henry I. Ellington, *How to Become an Excellent Tertiary-Level Teacher – Seven Golden Rules for University and College Lecturers*, Centre for the Enhancement of Learning and Teaching, Robert Gorton University, Aberdeen, p. 1.

50 Eddie Blass, 'The Future University: Towards a normative model from an emerging provision of higher education in Britain', *Futures Research Quarterly*, Vol. 19, No. 4, 2003, p. 63.

51 For more, see 'The Origin of the University', in Robert D. Honigman, C*hoosing a College – Why the Best Colleges May Be Your Worst Choice*, Ingram Book Group, 2003.

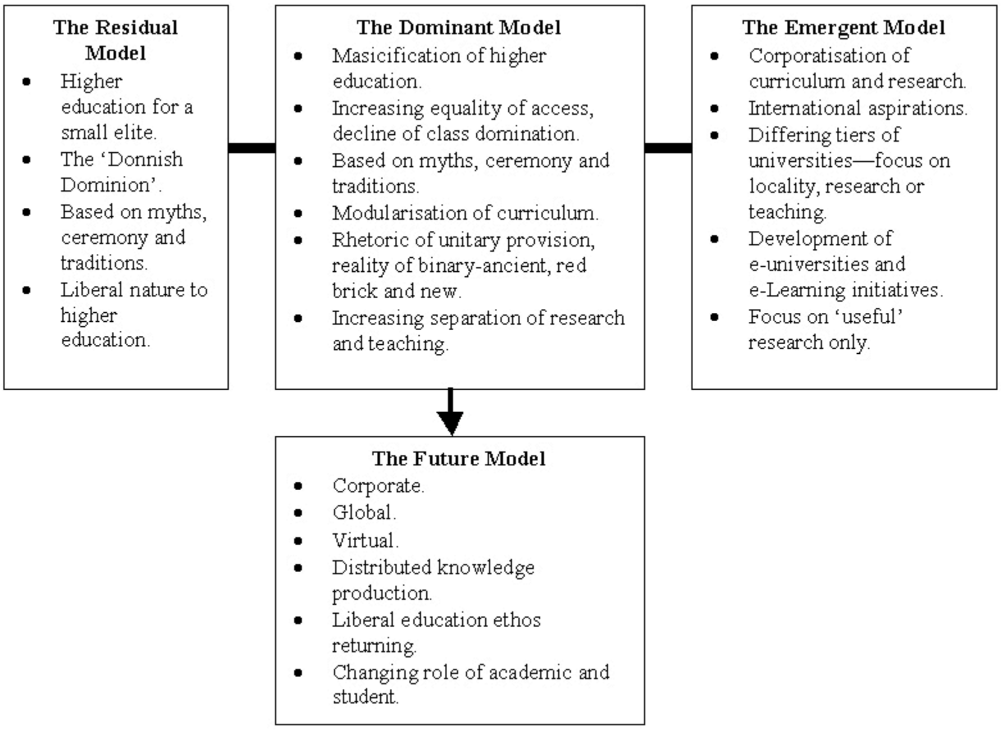

Figure 9 – Mapping the Models of the University[52]

Corporate universities are those who are owned by large organisations such as McDonalds, Motorola and British Aerospace. These institutes offer specialised higher education but are not accredited to matriculate degrees, and often partner with a recognised university to claim academic rigour. Other distinguishing characteristics are that the students are not only paid but share a common employer, there are no school leavers, and the programs are very focused toward the organisations' profession. Defence colleges are effectively corporate universities even though many are now earning the right to matriculate.

Blass identifies 'Virtual Universities' as the second emerging model. Extrapolating the growth in e-Learning, and the widespread attention from government, online learning is going to replace traditional higher education in the very near future. It is widely acknowledged that residential courses will be around for a long time yet, but technology-based learning will become the norm for the next generation of graduates.

> The development of the virtual university will encourage student centered learning as the students drive the pace, place and time of their studies, while the lecturer's role changes to that of facilitator, monitor and assessor.[53]

The third model identified by Blass is the 'Global University'. This is an extension of the virtual model but includes the sharing of courses between multiple universities. These partners collaborate in curriculum development as well as course delivery. Students engage in more international forums and gain a broader perspective on the

[52] Blass, 'The Future University', p. 66.
[53] ibid., p. 71.

material being studied. Like her other two models, Blass' Global University already exists in the form of brokerages. Her thesis, however, predicts these will become the norm, not the exception.[54]

University brokerages are relatively recent phenomena. Since the advent of the Internet and sophisticated software, online e-Learning has become a realistic challenge to not only traditional distance education, but even residential courses. Seizing on the opportunity afforded, many universities are exploiting the new virtual realm to capture a bigger share of the market. But there is more to brokerages than just milking a few more fee-paying students. Virtual universities, or Defence colleges for that matter, benefit greatly from the increased access to world-class courses and greater exposure to epistemic communities.

Brokerages operate in a shared portal environment. By pooling their best courses in one location, students who have enrolled in one institute can now access courses offered by partnering universities. It is in fact possible for a student to enrol in an entire course without actually stepping foot on any campus or even enrolling at one university. Brokerages benefit from the existing credibility and reputation of the contributing universities. While online and distance degrees were once sneered at, today many reputable institutes such as Oxford and Harvard are contesting the market.[55]

Summary

Higher education should be about constructivism, not instructivism; learning, not educating. A key learning difference between adults and children is the ability to relate new information to old and construct better understanding. Defence colleges need to ensure they challenge students in the higher levels of Bloom's taxonomy with interactive and andragogical methods.

The dominant cohort in Tier 3 PME today is Generation X. However, many share traits of younger generations in their expectation of continuous and technology enhanced education. Within the next decade, these expectations will also dominate Tier 4 PME. Tertiary institutes are responding to students' expectations by replacing dull monologue lectures with interactive technology. Globalisation has seen a proliferation of networked universities offering online programs and sharing research. The benefits of technology-enhanced education are explored further in the next chapter.

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[54] This assertion is shared by nearly every commentator on the subject. For example, see Rod Sims, 'Transforming Learning: Brief Reflections on Design for Effective Online Learning Environments', *OLT 2003 Excellence – Making the Connections*, Queensland University of Technology.

[55] For more, see their respective websites: http://www.ox.ac.uk and http://www.harvard.edu. Warning must be made of the dubious, and at times illegal, web-based providers who offer university qualifications with little or no academic work.

Chapter 6

e-Learning

We face a strategic decision. In making this decision, we essentially have two choices: To adopt a model of distance education and eLearning, which is as close as possible to face-to-face instruction, or to unleash the real power of distance education and eLearning.

– Dr Fred Saba[1]

The aim of this chapter is to introduce concepts, dispel myths and explore potential. It begins with an explanation of e-Learning and flexible learning. Contemporary models are then employed to explain how ICT is expected to reshape future PME systems. Current limitations and potential solutions conclude the chapter. Emphasis is placed more on how the technology is being incorporated into higher education than on the technology itself.

Definition of e-Learning

The prevalence of *digital natives* in both education and industry means the term e-Learning will soon be redundant. The New Zealand Ministry of Education has predicted the term will soon be dropped as the approach becomes the dominant, normative mode.[2] Until that time, however, they offer the following useful definition:

> e-Learning is learning that is enabled or supported by the use of digital tools and content. It typically involves some form of interactivity, which may include online interaction between the learner and their teacher or peers. e-Learning opportunities are usually accessed via the Internet, though other technologies such as CD-ROM are also used in e-Learning.[3]

e-Learning has a bad reputation. When it was launched, computers were slow and the software undeveloped. It was aggrandised on its potential, not its ability. Today, as both computing power and software design begin to match expectations, the damage has already been done. Overcoming the negative publicity is a challenge.

> **e-Learning is not the panacea.**
> – Project APTUS

e-Learning is more than electronic page-turning. Sophisticated software can personalise a learner's journey in a subject area and simultaneously ascend Bloom's taxonomy. The pace and direction can be adjusted to ensure the student remains challenged but not frustrated.

1 Dr Farhad (Fred) Saba, 'Year in Review: Who will Thrive and Prosper in the Pivotal Year Ahead?', *Distance Educator*, 2001, quoted in Leanne Smith, *Overview of Flexible Delivery in the Defence Organisation*, Research Paper, University of Southern Queensland, Australia, 2001, p. 1.

2 New Zealand Ministry of Education, *Interim Tertiary e-Learning Framework*, March 2004, http://www.tec.govt.nz/downloads/a2z_publications/step-03-04.pdf, viewed 9 August 2004, p. 4.

3 ibid., p. 3.

Improvements in computing power and interfaces, such as virtual reality, are reducing the academic–real world divide. At almost all levels of the education sector, e-Learning will revolutionise the way we learn. But computer directed learning is only one type of e-Learning. At the highest levels of education, it is the enhanced communication afforded by information technology where learning is really being revolutionised.

Flexibility and high-speed interconnectivity are further reasons why computers will transform PME. At all levels, technology will enhance war games and simulations beyond contemporary recognition. Tier 3 and 4 PME, however, usually explore current and future developments in the disciplines studied. Current technology precludes computers from teaching this sort of material outright, although increasingly sophisticated search engines already personalise news and help reduce the signal-to-noise ratio when researching. Perhaps the greatest value of technology enhanced PME is education globalisation.

Post-graduate level students can access peers and course mentors around the world almost anywhere, at anytime. In the specialised areas of PME, epistemic communities from around the globe can engage with each other and crosspollinate like never before. Foreign student mixes need not be limited to a small sample, nor will students be limited to only a few topics to study. Courses can be tailored to suit an officer's background and aspirations and be undertaken at a time that suits both the organisation and the individual. This is flexible learning.

Levels of e-Learning

e-Learning is a relatively new and complex concept that can be difficult to comprehend. As with most amorphous phenomena, theorists attempt to clarify our understanding by providing a tangible framework. The following construct by Chris van der Craats et al[4] is useful for understanding how e-Learning is currently implemented in higher education:[5]

Level 1. This describes the most basic use of Intranet or Internet portals to distribute university policy and administration of courses. Almost every university in the developed world now has an online portal designed to facilitate staff and student administrative issues.[6] Students can select future courses, enrol, and receive grades.

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4 Chris van der Craats, Jim McGovern and Linda Pannan, 'A five-level approach to the large-scale development and delivery of on-line programs', in A. Williamson et al (ed.), *Winds of Change in the Sea of Learning*, Vol. 2, UNITEC Institute of Technology, Auckland, New Zealand (19th Annual Conference of the Australasian Society for Computers in Learning Tertiary Education) 2002. An alternate version is available at http://www.ascilite.org.au/conferences/auckland02/proceedings/papers/182.pdf.

5 Similar variations are available from Stephen Harmon and Marshall Jones, 'The five levels of web use in education: Factors to consider in planning online courses', *Educational Technology*, Vol. 39, Issue 6, 1999, pp. 28–32; or Australian Department of Science Education and Training (DEST), *Universities Online – A Survey of Online Education Services in Australia*, Occasional Paper 02-A, March 2002, http://www.dest.gov.au/highered/occpaper/02a/02_a.pdf, viewed 2 August 2004.

6 Liyan Song, Ernise Singleton, Janette Hill and Myung Hwa Koh, 'Improving online learning: Student perceptions of useful and challenging characteristics', *The Internet and Higher Education*, Vol. 7, Issue 1, 2004, pp. 55–70.

Level 2. This level includes course management systems where students receive lecture notes and additional reading material much like the traditional noticeboard or pigeonhole system for passing out material.

Level 3. At this level, students begin engaging with the lecturer and fellow students in online forums. The major advantage over traditional tutorial or cafe discussions is the removal of time and proximity limitations. Lecturers need to have a basic understanding of online teaching principles to exploit the advantages of this system over legacy methods, such as peer-based formative assessment.[7]

Level 4. This is now the realm of fully online learning. Potentially, students completing courses at this level may never meet face-to-face. Those responsible for designing these courses need to have a comprehensive understanding of online-specific andragogical, or pedagogical, imperatives. Simply broadcasting a traditional lecture over the web undermines the real strengths of e-Learning and is potentially less effective than attending the lecture in person. 'If you add technology to teaching without looking at its impacts, you just go from bad teaching to expensive bad teaching.'[8]

Level 5. The highest level of e-Learning involves multi-sensory, media-rich delivery such as virtual reality. Currently these are both difficult and expensive to develop although this is expected to change in the near future. Cheaper and more user-friendly design software is likely to see this style of learning become the norm in the next two decades. Students will partake in virtual discussions and explore new realms of information management. Level 5 can be further explained using the *planets* approach.

Planets

The four planets concept is a useful way of understanding how defence colleges can exploit the emerging strengths of information technology. Developed by Professor Gilly Salmon, a leading researcher in e-Learning, this model separates higher e-Learning into *Contenteous*, *Instantia*, *Nomadict*, and *Cafélattia*.[9] Salmon acknowledges the four types overlap and many e-Learning systems will employ more than one approach.

Contenteous. This is the most traditional style of teaching where a subject matter expert (SME) is responsible for imparting knowledge to novices and guiding them through a controlled, but online, learning process. Its appearance closely resembles a normal university setting where students enrol in a course and can 'attend' classes. They will typically see the lecturer—or an alternate avatar[10] lip-synched to any language—as well as their fellow classmates, and multimedia clips or simulations. Students can engage with both the lecturer and peers. These courses must be

[7] For more, see Margaret Driscoll, *Psychology of Learning for Instruction*, Second Edition, Allyn & Bacon, Boston MA, 2000.

[8] Un-named, 'University educational technologist' quoted in New Zealand Ministry of Education *Interim Tertiary e-Learning Framework*, p. 9.

[9] Dr Gilly Salmon's various presentations and publications are available at http://www.atimod.com/presentations/. Specific information on her planets models can be found at http://www.atimod.com/presentations/download/Salmonleeds.htm.

[10] A good example is the physics lecturer from Essex university who found substituting himself with a Britney Spears avatar significantly increased student attendance. Raj Sheth, 'Avatar Technology: Giving a Face to the e-Learning Interface', *The e-Learning Developers' Journal*, 25 August 2003, p. 3.

developed specifically for online delivery, but ultimately remain content focused.[11] This is a modern incarnation of Defence college expert lecturers. The format will be familiar to many military officers who already engage in virtual meetings or attend pre-multinational exercise planning sessions online.[12]

Instantia. This planet captures the essence of just-in-time education. Workers can access education from their office, foxhole, or cabin as and when required.[13] For example, an officer receiving a posting notice to a command position could complete a pre-command course while still in the previous appointment. This approach also allows for continuous PME dovetailing in with other career learning experiences (CLE). However, good Human Resource Management (HRM) is essential for this to work. Research in both the Canadian and Australian militaries show how supervisors often expect 'two days out of one' when officers attempt to complete DL modules and fill a normal appointment post. Similar findings exist in the US:

> Human-resource development does not traditionally compete well when in competition with operational and systems-development imperatives.[14]

Nomadict. This is the realm of permanently connected students who access global information anytime, anywhere. While the concept invokes visions of cyborgs, its reality is here already.[15] Soldiers on the battlefield already have access to third generation mobile phones, GPS, wireless PDAs, and a host of other hard-, soft-, and wet-ware[16] technologies. Learning is flexible, mobile, time-independent and personalised. In the near future, students undertaking PME research will have unprecedented levels of access to information.[17] These learners are seen as electronic explorers and adventurers.

Cafélattia. This is the ultimate university campus café—linking epistemic communities in a way where global collaborative learning and problem solving can occur with seamless synergy. This can include peer-to-peer or novice-to-expert. It can be synchronous or asynchronous.[18] It is particularly well suited to blended learning and the high-level, specialised topics of Tier 3–5 Defence colleges. The distinction between think-tank research and education becomes blurred. Salmon highlights the challenges for e-moderators in assessing this type of learning.

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[11] An example of this level is developed by the software company onCue, Impacta. For more, see their website at http://www.impacta.com.

[12] For example, see the Multinational Planning Augmentation Team (MPAT), http://www2.apan-info.net/mpat/, or the Asia Pacific Area Network (APAN) http://www.apan-info.net/country_sites/default.asp.

[13] It should be noted the US Navy is currently experiencing technical difficulties in providing full e-Learning services to sailors at sea, particularly submariners.

[14] Dr James Smith, 'Expeditionary Leaders, CINCs, and Chairmen: Shaping Air Force Officers for Leadership Roles in the Twenty-First Century', *Aerospace Power Journal*, Winter, 2000, p. 42.

[15] Dr Jarmo Toiskallio, 'Cyborgs and Humans: Two Paradigms of Military Pedagogy', in Florian, *Military Pedagogy – An International Survey*, 2002, pp. 83–100.

[16] Wet-ware refers to human/computer interface. It can include the programmer, a cyborg type combination, or computer controlled or designed chemicals injected into the human body to control responses.

[17] For an authoritative exposé of what is soon to be available, see Michael Dertouzous, *What Will Be – How the New World of Information will Change our Lives*, Harper-Collins, London, 1997.

[18] Synchronous refers to real-time conversations, while asynchronous is delayed.

Problems with e-Learning

e-Learning is not a magic solution. There are a number of disadvantages and problems to overcome when transitioning from traditional classroom-only education to a mixture of delivery modes. The following section explores some of the issues relating to cultural acceptance, technological limitations, cost, and educational effectiveness.

> Military education institutions have been slower to adapt to new insights about how people prefer to learn, slower to incorporate information technology, and reluctant to venture outside their hallowed walls.[19]

In some militaries, Luddites will inhibit educational progress.[20] Many older military officers reminisce to their own staff course days and fail to grasp the impact major technology advancements have on educational theory and student expectations. 'The basic problem is not an unwillingness to face the future but an inability to identify with it.'[21] At the implementation level, those resisting technology often cite being too busy to learn or develop the necessary coursework. Studies have also found a greater reluctance from staff in particular disciplines or those over the age of 45.[22] Students are similarly influenced in their acceptance of e-Learning. Studies show, not surprisingly, younger students and those with more positive attitudes are the most enthusiastic adopters of online learning.[23]

Many detractors point to technological restrictions as a limitation of e-Learning. Given the importance educational psychologists place on interactivity and media rich stimulation, the need to include, although not necessarily stream, Voice, Video and Data (V2D) is obvious.[24] Current bandwidth problems limit many networked applications from delivering full Level 5 (multi-sensory) learning. Yet the bandwidth problem is already being resolved.[25] Many universities in New Zealand[26] and around

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19 J.W. Kelley, 'Brilliant Warriors', *Joint Force Quarterly*, Spring, 1996, p. 1.

20 Fortunately, the NZDF has a strategic culture of being innovative and does not suffer from the same level of bureaucratic 'institutional inertia' experienced in many medium and larger militaries.

21 R. Baskin and D. Schneider, 'Learning as a Weapon System', *Air and Space Power Journal*, Vol. 17, Issue 2, Summer, 2003, p. 103.

22 From a 1998–1999 study of 33,785 staff at 378 tertiary institutes conducted by the Higher Education Research Institute at the University of California, quoted in Maryann Lawlor, 'On-line strategies require close examination', *Signal*, Vol. 54, Issue 5, 2000, pp. 29–32.

23 Professor Parbudyal Singh and Professor William Pan, 'Factors Affecting Student Adoption of Online Education', *Academic Exchange*, Spring, 2004, pp. 7–10.

24 Research conducted by ISN in Switzerland has found streaming V2D to be not worth the trade-offs. Unstreamed (progressive downloads) are currently considered better for e-Learning. However, even unstreamed V2D requires higher bandwidth to remain efficient. Bandwidth limitations were the leading cause of frustration for non-residential US war college students. United States Government Accountability Office, *Military Education – DOD Needs to Develop Performance Goals and Metrics for Advanced Distributed Learning in Professional Military Education*, Report to the Ranking Minority Member, Committee on Armed Services, House of Representatives, 2004, http://www.gao.gov/new.items/d04873.pdf, viewed 20 August 2004, p. 37.

25 For an example of how the US Military is breaking through the bandwidth problem to deliver 'new media' high quality simulation training to deployed personnel, see Mickey McCarter, 'Striking it Rich', *Military Training Technology*, 19 July 2004, http://www.mt2-kmi.com/articles.cfm?DocID=543, viewed 2 August 2004.

26 In New Zealand, this Advanced Network for Research and Education is initially planned to link 127 universities, wananga, polytechnics and Crown Research Institutes. Francis Till, 'Internet 2 Nearly Here', *The National Business Review*, 3 June 2004.

the world are now using Next Generation Internet (NGI) and Internet2 high performance networks.[27] These systems are up to 20,000 times faster than a typical Internet dial-up connection. Coupled with such leaps in technology are the necessary industry standards such as SCORM (Sharable Courseware Object Reference Model) developed by ADL (Advanced Distributed Learning).[28]

> Recent and ongoing developments in the field of optical communications have resulted in the doubling of the [Internet] transmission capacity of fiber [sic] optic cable every 12 months.[29]

A major technological problem for many smaller militaries is the absence of an IT infrastructure. As shown in Figure 10 most militaries in the developing world have yet to establish official computer servers. This suggests many are still building their IT infrastructure and are therefore less likely to adopt blended learning solutions immediately. Yet enrolling in an online course needs little more than an Internet connection through any Internet Service Provider (ISP).

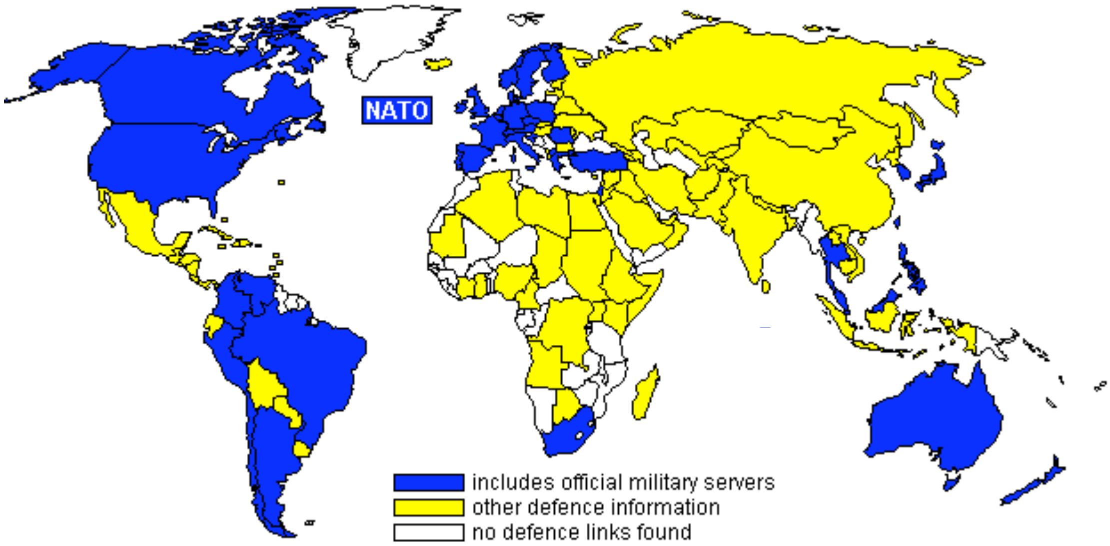

Figure 10 – World Map Showing Established Military Servers[30]

Other potential technical problems will likely emerge as the bow-wave pushes further into uncharted territory. The demand for faster communication and more powerful learning experiences will demand new developments in the field of educational technology. But in most cases, this will come at a cost. Cost has been found to be the greatest obstacle to implementing e-Learning.[31]

27 For more on NGI or I2, see http://www.slac.stanford.edu/grp/scs/net/talk/sluo-may97/tsld009.htm, http://www.Internet2.edu/, or http://www.uis.harvard.edu/emerging_technologies/Internet2.php.

28 Advanced Distributed Learning (ADL) is an initiative seeking to improve online higher education by ensuring interoperability. For more, see http://www.adlnet.org.

29 D.S. Alberts, J.J. Garstka and F.P. Stein, *Network Centric Warfare – Developing and Leveraging Information Superiority*, Second Edition, C4ISR Cooperative Research (CCRP), 2000, p. 249.

30 Source: Canadian Forces College Website, http://www.cfc.forces.gc.ca/home_e.html.

31 Study conducted by Business Research Group of Newton, USA, cited Air War College, 'Professional Military Education in 2020', p. L–14.

Cost

e-Learning is seldom promoted as an immediate cost saving venture. While there are a number of studies claiming cost savings, most admit 'it will generally take firms up to three years to achieve savings of 20–30 per cent'.[32] The immediate benefits of reduced travel and physical infrastructural costs are offset by the high set up. Most current research, however, focuses on purpose-built training systems for industry or the transition period of institutes who are still paying physical infrastructural overheads.

Obviously there are a number of costs involved in the initial hardware outlay and software design. There is also the ongoing operational, maintenance and upgrade costs of both. Costs also vary depending of degree of sophistication, simulation and uniqueness.[33] Commercial Off-the-Shelf (COTS) packages are usually cheaper, so too are in-house designed courses. Developing packages internally will be more realistic as software becomes easier to learn and use. In short, the design costs are expected to decrease for mainstream systems.

> Metcalfe's Law observes that although the cost of deploying a network increases linearly with the number of nodes in the network, the potential value of a network increases (scales) as a function of the square of the number of nodes that are connected by the network.[34]

e-Learning is cost-effective over time.[35] Based on reasonable student numbers and upgrade rates, the combined fixed and variable costs make e-Learning financially viable for tertiary providers.[36] For example, a typical university course, with 40 students and spread over four years, costs NZ$779 per student.[37] This cost goes down with every additional student added. But producing the system is not the final price for those who want to purchase online learning.

There is obviously a difference between the cost to produce and the price education providers charge. A survey of major Australian and New Zealand universities indicate course fees are usually the same for residential or distance modules. The standard cost of a single course/paper in a postgraduate program is between NZ$900 and NZ$1500 for domestic students.[38]

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32 Helen Beckett, 'Blend skills for a better class of e-Learning', *Computer Weekly*, 20 January 2004, p. 20.

33 For a sample of costs based on sophistication, see Dr Greville Rumble, 'The costs of networked learning: what have we learnt?', conference paper presented at *Flexible Learning on the Information Superhighway Flish 99 – The Business Case for Online Learning*, http://www.shu.ac.uk/flish/rumblep.htm , viewed 5 August 2004.

34 Alberts et al, *Network Centric Warfare*, p. 250.

35 M. Rosenburg, *e-Learning Strategies for Delivering Knowledge in the Digital Age*, McGraw-Hill, United States, 2001, pp. 214–220.

36 For more on calculating methodology, see Greville Rumble, *The Costs and Economics of Open and Distant Learning*, London, Kogan Page, 1997; or Dr A. (Tony) W. Bates and Silvia Bartolic, *Assessing the Costs and Benefits of Telelearning – Six Case Studies*, University of British Columbia/National Centre of Excellence in Telelearning, Vancouver, 1999.

37 This was US$473 or C$676 and excludes the additional costs of computer hardware or printing incurred by the student. Tony Bates, *Managing Technology Change*, Jossey-Bass, USA, 2000, p. 144.

38 The per student cost of the seven-month NZ DF CSC equates to 45 DL papers, while the eleven-month Australian course is equivalent to about 100 university papers (courses).

Educational Effectiveness

A common charge against distance learning is its reduced educational quality when compared with residential courses. Literally hundreds of studies have attempted to resolve this debate; there have even been studies done on the studies.[39] But measuring the success of e-Learning programs is often invalidated by false *ceteris paribus*[40] assumptions. In other words, most studies fail to compare apples with apples. Other criticisms of most comparative studies include the lack of random subject selection, problems with the validity and reliability of instruments, and the singular focus on individual course outcomes rather than synergistic impact on entire programs. Such difficulties are reflected in the contradictory findings.

> **Why should traditional classroom education be used as the 'gold standard' to compare other forms of education against?**
> – David Diaz

Measuring effectiveness in higher education is always problematic—but more so when comparing different delivery modes. Some studies have attempted to compare the quality of deliverables,[41] while others consider student participation, collaboration, or completion rates. For Defence colleges, other important considerations include student networking, acculturation, cross-pollination and flexibility (to accommodate operational commitments). Factors of concern to military and civilian institutes alike include cost-effectiveness and student satisfaction. The latter being relevant to progression rates,[42] depth of learning, continuation of program, and perception of relevance.

One of the leaders in online learning research is Dr Linda Harasim who collected data from over 439 Virtual-U courses, including more than 15,000 students and 220 instructors. She found completion rates in online learning are 'as high if not higher than traditional face-to-face mode, with 90 per cent completion rates in online Virtual-U courses'.[43] While other major studies claim distance education is effective 'when effectiveness [is] measured by the achievement of learning, by the attitudes of students and teachers, and by return on investment'.[44] Although there appears to be

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39 For example, Ronald Phipps and Jamie Merisotis, *What's The Difference? A Review of Contemporary Research in the Effectiveness of Distance Learning in Higher Education*, Institute for Higher Education Policy, Washington DC, 1999, (ED 429 524), http://www.ihep.com/Pubs/PDF/Difference.pdf, viewed 2 August 2004.

40 The acceptance that all other variables, except those being measured or manipulated, remain constant.

41 These include essays, assignments, or other measurable assessments. However, these may not be the best indicators of deep learning as they exclude testing of retention and might not require originality or understanding.

42 Length of time taken to complete a qualification.

43 Professor Linda Harasim, 'A New Paradigm in Learning – The Virtual-U: Lessons Learned from the largest field trials in post-secondary online education', keynote address, *Hong Kong Web Symposium*, 9 June 2000, http://www.hkwebsym.org.hk/2000/key_harasim.htm, viewed 5 August 2004.

44 Michael G. Moore and Melody M. Thompson, *The Effects of Distance Learning*, revised edition, ACSDE Research Monograph No. 15, American Center for the Study of Distance Education, Pennsylvania State University, University Park, PA, 1997, p. 59, quoted in David P. Diaz, 'Carving a New Path for Distance Education Research', *The Technology Source*, March–April 2000. Also available at http://www.ltseries.com/LTS/pdf_docs/newpath.pdf.

more research supporting e-Learning,[45] there is also a lot which discredits its effectiveness.[46] '… the movement toward online learning is not grounded in compelling empirical evidence that it is effective and/or beneficial for learning.'[47]

Not surprisingly, numerous studies argue in favour of residential courses. One such study in the mid-1990s compared US Army residential and non-residential courses and found the residential course to be superior.[48] This, and other similar studies, will strike a cord with those who have already made their minds up based on personal experience. Indeed there are many elements of a residential course that are hard, or even impossible, to replicate online—for example, socialising, camaraderie, and other intangibles. These are particularly desirable in Defence colleges where networking, acculturation and affective domain inculcation are often stated course outcomes.

In 2002, the US National Education Association (NEA) Higher Education Research Center argued against the value of DL, claiming most commercial software providers have either changed their mission or gone out of business.[49] They also cite 'lower student acceptance' and 'higher than expected staff workload' as antecedents for many ventures failing. While the study acknowledges many success stories it reinforces the need for good implementation strategies.

US Online Courses in 2003

- 81 per cent of all US higher education institutions offered at least one fully online or blended course.
- Complete online degree programs were offered by 34 per cent of the institutions.
- 97 per cent of US public institutions offered at least one online or blended course and 49 per cent offered an online degree program.
- 67 per cent had online learning as a critical long-term strategy for their institution.

– Allen and Seaman

Attempting to resolve the debate over e-Learning's relative effectiveness is premature. The rapid development of technology means many evaluation studies are out of date by the time they are published. Studies conducted on poor quality, less sophisticated applications are unlikely to remain valid for future systems. Furthermore, as the prevalence of digital native students increases, the acceptance (and arguably success rates) will also improve.

[45] For more, see John Bradford, Eli Leher and David A. Smith, 'Alternatives to today's military academies', *The American Enterprise*, Washington, Vol. 10, Issue 4, July–August 1999, pp. 56–60; or James Prior, 'Online Degrees are Making the Grade', *New Jersey Business*, Newark, Vol. 49, Issue 11, 2003.

[46] For example, see Noriko Hara and Rob Kling, 'Students' Frustrations with a Web-Based Distance Education Course: A Taboo Topic in Discourse', *Information, Communication & Society*, Vol. 3, Issue 4, 2000, pp. 557–579.

[47] L. Song, E.S. Singleton, J.R. Hill and M.H. Koh, 'Improving online learning: Student perceptions of useful and challenging characteristics', *The Internet and Higher Education*, Vol. 7, Issue 1, 2004.

[48] Her study was not large (only 39 non-resident and 71 resident). The participants were not randomly assigned—meaning the US Army determined who was in each group based on other criteria. The non-resident program used early generation blended learning (limited teleconferencing, VHS and interactive videodisks, and a two-week resident module). Wardell acknowledges nine other studies found no significant difference (p. 92). Connie S. Wardell, *Distance Education – A Study of A Military Program*, PhD Dissertation, University of Louisville, 1997.

[49] NEA Higher Education Research Center, 'The Promise and the Reality of Distance Education', *Update*, Vol. 8, No. 3, October 2002.

> Attitudes towards the quality of the courses offered online are changing and a majority of Academic Officers believe the learning outcomes in online courses will equal or exceed that of face-to-face courses within three years.[50]

Given the explosion of e-Learning in higher education, the trend now seems irreversible. Many argue the debate's focus should shift away from comparing the two delivery modes to simply measuring the quality of non-resident learning[51] or the method of teaching–learning rather than the media.[52]

e-Learning does not suit everyone, or every subject.[53] Contemporary thinking is to include a combination of traditional and IT-based learning.[54] This logical evolution process suits the gradual transition toward an acceptance of fully online learning as the normative model. As the technology improves, and digital natives become the majority, this balance is expected to shift. For the near future though, the combination of face-to-face and online learning is the optimal solution. This combination is known as blended learning.

Blended Learning

Blended learning provides the opportunity to extract the 'best of both worlds'.[55] It usually involves opening a course with a seminar (considered essential for higher completion rates) but may also include ongoing sessions throughout the course. In the case of an internationally dispersed course, such as a Global Defence College, it would also be acceptable to have regional seminars at satellite locations. Emerging technologies are also making *virtual residency* a viable alternative, yet still remaining under the blended learning banner. While such technologies already exist, its status as a normative model is still a few years away. Conventional blended learning, however, is close to being the norm now. An estimated six million university students were participating in blended learning in 2003.[56]

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50 Dr I. Elaine Allen and Dr Jeff Seaman, *Sizing the Opportunity: The Quality and Extent of Online Education in the United States, 2002 and 2003*, The Sloan Consortium, USA, 2003, p. 3. Also available at http://www.sloan-c.org/resources/sizing_opportunity.pdf.

51 For example, see Alfred P. Rovai, 'A practical framework for evaluating online distance education programs', *Internet and Higher Education*, Vol. 6, 2003, pp. 109–124; or Susan Y. McGorry, 'Measuring quality in online programs', *Internet and Higher Education*, Vol. 6, 2003, pp. 159–177.

52 Richard Clark, quoted in Dr Stephen C. Ehrmann, 'Asking the Right Question: What Does Research Tell Us about Technology and Higher Learning?' *Change*, Vol. 29, Issue 2, March–April 1995, pp. 20–27.

53 Current acceptance rates in the Australian Army, as well as the Canadian Forces, is about one third like it, one third are ambivalent, and the rest hate it.

54 Technology will never make residential universities completely redundant. For more on this, see A. Michael Noll, 'Technology and the Future of the University: A Sober View', in William H. Dutton and Brian D. Loader, *Digital Academe – The New Media and Institutions of Higher Education and Learning*, Routledge, London, 2002, pp. 35–39.

55 Monika Rola, 'Don't Forget the Human Touch', *Computing Canada*, Vol. 29, Issue 8, 2003, p. 20; or V. Rishi Kumar, 'Go for Collaboration: Classroom-based learning and e-Learning can be combined for blended programme. That would be making the best of two options', *Businessline*, 18 June 2003, p. 1.

56 Jeff Ward, 'Blended learning: The convergence of e-Learning and meetings', *Franchising World*, Vol. 35, Issue 4, May–June 2003, p. 22.

Blended learning is often described in terms of mixed delivery techniques—online plus one or more traditional approaches. But really this is nothing more than blended education. A better approach is to emphasise the different ways students learn. Rather than a spectrum of delivery modes, the learner-centric definition considers a selection of preferred learning approaches. These may include collaborative research, workplace innovation, CLEs, or formal courses. To some the distinction may seem semantic, or even pedantic, but to learners the difference is real.

> … from the learner's perspective, blended learning is about a continuous process of job experience, knowledge gathering, guidance, and counselling with reinforcement and performance feedback. So blended learning must be focused primarily on the continuous blend of experiences of the learner … not the blend of delivery of which an organization [sic] is capable.[57]

Educational effectiveness of blended learning is even more favourable than is claimed for most pure online courses.

> Moreover, blended courses, when compared to traditional courses, had equivalent or reduced student withdrawal rates as well as equivalent or superior student success rates.[58]

But again, the value of such comparative studies is limited by the chosen criteria of 'success' and is constantly overtaken, not only by improving technology, but also better employment of it. The leitmotiv remains the irrelevance of most contemporary research. Embracing a flexible PME system should be influenced more on trends and potential than on recent performance. A hedging transition option involves mixing both traditional residential and blended learning systems.

In-residence blended learning courses appear to be the best compromise for maximising learning. Having the option of full-time attendance will address the differing needs of all learning styles. This will permit students to immerse themselves in short term learning away from work, or adopt an *instantia* approach. The removal of workplace distractions is a double-edged sword. The opportunity to weave real world and academia into a continuous learning experience offsets the absence of an intense study environment. Students attending a residential course can hone their research skills and analytical thinking when immersed with like-minded peers and mentors. But too long in such an environment can lead to burnout. The optimum balance will vary for individuals and topics being learned. Blended, or even purely online, learning can still be conducted on a physical campus. An ideal solution will be for residential facilities to be made available for those who want or need them and for particular courses the organisation feels are essential. Students can attend short blended learning seminars or remain for an entire module or program.

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57 Peter Cheese, 'How do Learners Define Blended Learning?', *Learning & Training Innovations*, ABI/INFORM Global, February–March 2003, pp. 16–17.

58 Alfred P. Rovai, 'A Constructivist Approach to Online College Learning', *Internet and Higher Education*, Vol. 7, 2004, p. 83.

The emerging trend in PME is for continuous learning vice long one-off courses.[59] This new approach allows Service personnel to study short educational modules just as they do with post-graduate training courses. These educational modules may be residential or blended, domestic or international. But to provide thematically congruent and synergistic learning, a strategic framework must be developed.

> PME should establish a strategic framework early in the officer's career so that subsequent operational and educational experience can extend and fill out that framework toward strategist competence.[60]

Summary

e-Learning involves the use of interactive technology to enhance learning. In higher education the Internet also facilitates geographically dispersed epistemic communities in collaborative research and learning. e-Learning can be divided into levels to describe differing levels of sophistication and adoption. At the highest level, e-Learning can be thought of as four overlapping categories involving enhanced, continuous, collaborative, and flexible learning. Flexible learning refers to anytime, anywhere learning to suit the student or workplace's needs.

e-Learning does not suit every subject or every student. Numerous studies have attempted to assess the academic and cost effectiveness of e-Learning compared to traditional approaches. While the results are mixed, technology, and the way it is employed, is improving daily. The best indicator of e-Learning's applicability to higher education in the coming decade is not current performance but improvement trends. One such enhanced implementation is the combination of both class and online coursework—or *blended learning*. The contribution of flexible and blended learning to higher military education is explored further in the next chapter.

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59 For more on these trends, see Kenny, S.H., 'Professional Military Education and the Emerging Revolution in Military Affairs', *Air & Space Power Journal*, Vol. 10, Issue 3, Fall, 1996; C.S. Sikes, A.K. Cherry, W.E. Durall, M.R. Hargrove and K.R. Tingman, 'Brilliant Warrior: Information Technology Integration in Education and Training', research paper presented to *Air Force 2025*, August 1996; or Charles M. Ferguson and Dennis C. Thompson, 'Improving Professional Military Education at Marine Corps University', *Marine Corps Gazette*, Vol. 2, Issue 7, July 2002, pp. 21–24. For an assessment of NZDF and continuous learning see Clare Bennett (ed.), *New Zealand Futures Assessment: Professional Development Implications*, New Zealand Defence Force, 2003, p. 25.

60 J. Smith, 'Expeditionary Leaders, CINCs, and Chairmen', 2000, p. 41.

Chapter 7

Professional Military Learning

But technology is only one dimension critical to the success of information age education and training. To be effective and efficient in 2025, we must properly integrate technology into our education and training systems to keep us in front of the pack.

– 'Brilliant Warrior'[1]

This chapter outlines a proposed solution to many of today's PME challenges. It begins with an overview of the key tenets required in a replacement system before expanding on the framework of modules and qualifications. The final section explains the Global Defence College concept and how this could help not only New Zealand, but also many other countries.

Key Tenets

Based on the problems facing the NZDF, trends overseas and developments in both adult education and the educational technology sector, the following key tenets are predicted to characterise NZDF PME of the future:

Modular. Long courses will need to be broken up into discrete modules. Students can then enter and exit PME harmoniously with postings, operational tours and other work commitments. Modularisation is also a prerequisite for the other elements.

Continuous. PME can no longer be limited to one or two long courses. Memory fade and currency have always been a problem in higher education, but with today's rapidly changing security situation, military officers need to remain constantly abreast of developments.

Universal. Advanced PME can no longer be limited to a few elite officers. While not everyone will require a comprehensive understanding, more should have an introduction. Greater involvement of Defence civilians and other government agencies in military learning is also desirable.

Tailored. Officers and senior Defence civilians come from diverse backgrounds, making a single starting and end point not only difficult, but inefficient. While some core elements are required to ensure a breath of understanding in general issues, scope should exist for advancement in specialist areas.

Global. Students should be allowed to access internationally offered modules. Everyday business is increasingly networked and global, making such education

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1 C.S. Sikes, A.K. Cherry, W.E. Durall, M.R. Hargrove and K.R. Tingman, 'Brilliant Warrior: Information Technology Integration in Education and Training', research paper presented to *Air Force 2025*, August 1996, p. 2.

equally acceptable. Networked PME will provide greater cross-pollination with international students and access to otherwise isolated, epistemic communities. NZDF officers need to understand the unique geopolitical environment and *modus operandi* of the New Zealand Government yet have the diversity of education only available at foreign institutes.

Blended. Student learning styles are diverse. Provision needs to be retained for residential learning but enhanced by access to global education and flexible working hours.

Flexible. PME modules will need to be available 24/7 to allow anywhere, anytime learning.

Learning-centric. Future higher PME should be renamed Professional Military Learning (PML)—if not literally, at least in application. At the higher end (Tiers 3, 4 and 5) emphasis needs to be placed on student learning, not instructivism. Formal acknowledgment of CLEs and alternative learning environments will supplement conventional opportunities for senior officers to learn when and how it suits them best. While the direction and depth will be managed to suit the organisation's needs, it will no longer be dictated solely by delivery means.

The Framework Vision

Eventually, long all-compulsory PME courses will be as relevant as cavalry charges.[2] They will be replaced by a multitude of core and elective modules for designing tailored programs of study. Students undergoing PML will overlap with other students entering the framework on a continuous basis. Some modules will be delivered on-site at the NZDC or satellite campuses while others may be completed through short overseas courses or blended learning. International students could still base themselves in New Zealand to complete modules and engage with NZDF agencies. Similarly, New Zealand officers will still travel abroad to complete short modules at other colleges just as they currently attend foreign exercises or training courses.

The NZDC, like its partnering colleges, might wish to matriculate its own qualifications. This would involve accreditation with the New Zealand Qualifications Authority (NZQA) to award degrees. NZQA recognition of foreign modules would be necessary if the NZDC is to award qualifications based on their inclusion. This is similar to the European Credit Transfer System (ECTS) recently launched in Bologna to enhance course interoperability between European universities.[3]

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2 This refers only to mid and later career academic PME, not Tier 1 (commissioning) courses that involve extensive training and affective domain learning. Furthermore, it does not negate the value of short residential modules or longer study sabbaticals, both of which provide other non-academic benefits.

3 For more on the Bologna Declaration, see *The Bologna Declaration on the European Space for Higher Education – An Explanation*, http://europa.eu.int/comm/education/policies/educ/bologna/bologna.pdf, viewed 4 August 2004.

The qualification's mana needs to be reputable. Overseas studies suggest small-sized Defence colleges lack public acceptance in terms of academic credibility.[4] While some larger military institutes do award their own degrees, others partner with 'sandstone' universities to award reputable qualifications.[5] Some virtual university consortiums offer graduates a parchment with the crests of all participating institutes. An NZDC degree might include the crests of the respective institutes involved in the qualification or seek a primary sponsor university. This would probably need to be the 'institute of choice' for the compulsory modules and also the preferred deliverer of the compulsory Tier 1 and Tier 2 modules.

Qualifications

Research on Generation X shows they are even more influenced by extrinsic motivators than previous generations and have an expectation of continuing education.[6] To remain relevant to current and future generations of Service personnel, the NZDF needs to continue offering tangible rewards such as academic qualifications. While PML will be an ongoing process, various milestones will provide realistic incentives and tangible reinforcement. The qualifications continuum (Figure 11) is indicative of how the NZDF might align a number of NZQA recognised qualifications with the PML framework. Each qualification would build on previous academic achievements and include alternative learning such as CLEs.[7]

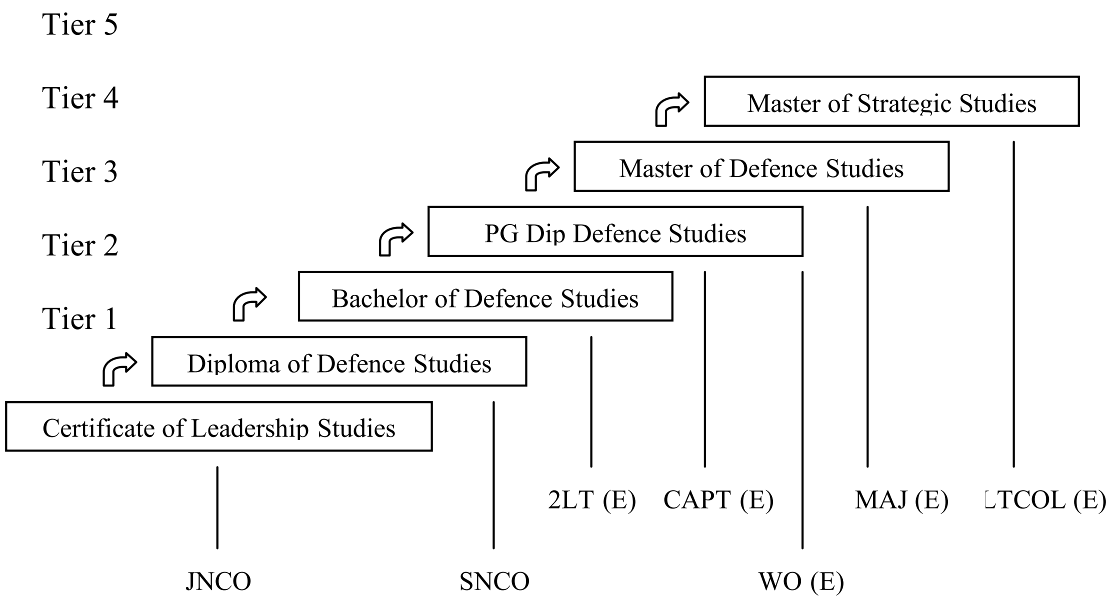

Figure 11 – Possible Continuum of NZDC Awarded Qualifications

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4 This was the reason ADFA was established as a satellite campus to the University of New South Wales rather than a university in its own right. To remain attractive to high calibre recruits, it was deemed necessary to be associated with one of the 'big eight' universities in Australia.

5 Such as RCDS in the UK, which does not have a research faculty in its own right. The amalgamation into the Defence Academy has perhaps given it the critical mass to award its own degrees, the reputation of a world-renowned civilian partner no doubt adds weight to RCDS' status.

6 Clare Bennett (ed.), *New Zealand Futures Assessment – Professional Development Implications*, New Zealand Defence Force, 2003, p. 25.

7 As proposed by Project APTUS.

An undergraduate Certificate or Diploma in Defence Studies will represent part of initial officer training. The Bachelor of Defence Studies, is already partially completed by officer cadets in the NZ Army when they complete their pre-commissioning training. Junior officers entering the NZDF are often required to already hold a bachelor level degree. Even those who do not require a completed degree often have a number of first or second year units completed. Most existing tertiary qualifications would dovetail into this framework. Degrees from other disciplines will be considered for advanced standing toward the Defence Studies qualifications.

The replacement psc(j) will be a Master of Defence Studies at the Tier 3 level and a Master of Strategic studies in lieu of Tier 4 courses. Each qualification will be personalised to individuals, depending on career aspirations, previous experiences and a mutually agreed arrangement with Defence, and based on their background corps or branch and the needs of the NZDF to fill gaps.[8] The Canadian Forces College has already developed a similar approach (Figure 12).

The qualifications would build on the previous and include recognition of postings and deployments as career learning experiences (CLEs). Branch heads would be responsible for specifying core and optional courses for their respective area and considering new or additional courses. The academic body, in consultation with Branch heads, would consider applications for RPL, ACC and CLE. Any member of the NZDF would be eligible to undertake study at any level and progress at their own rate, provided they meet the academic prerequisites and have local commander approval.

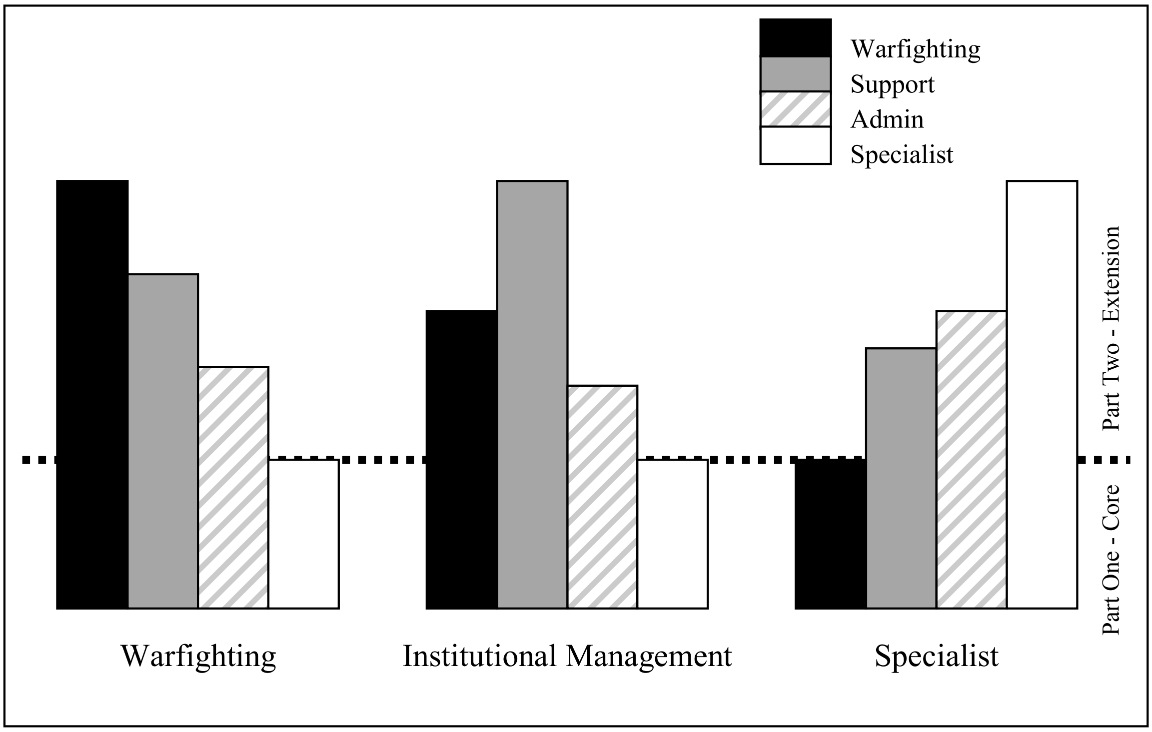

Figure 12 – Canadian Forces College Proposal for Professional Employment Streaming T3 (DP3) PME

8 Students wishing to pursue subjects outside their approved list would need to fund the course themselves.

The NZDC will monitor a Human Capital Management database in concert with research and Learning Content Management systems. This system would be similar to the four-part structure proposed by General Viktor Barynkin,[9] where a local network interfaces with the Internet to provide both learning and management of higher military educational institutions (Figure 13).

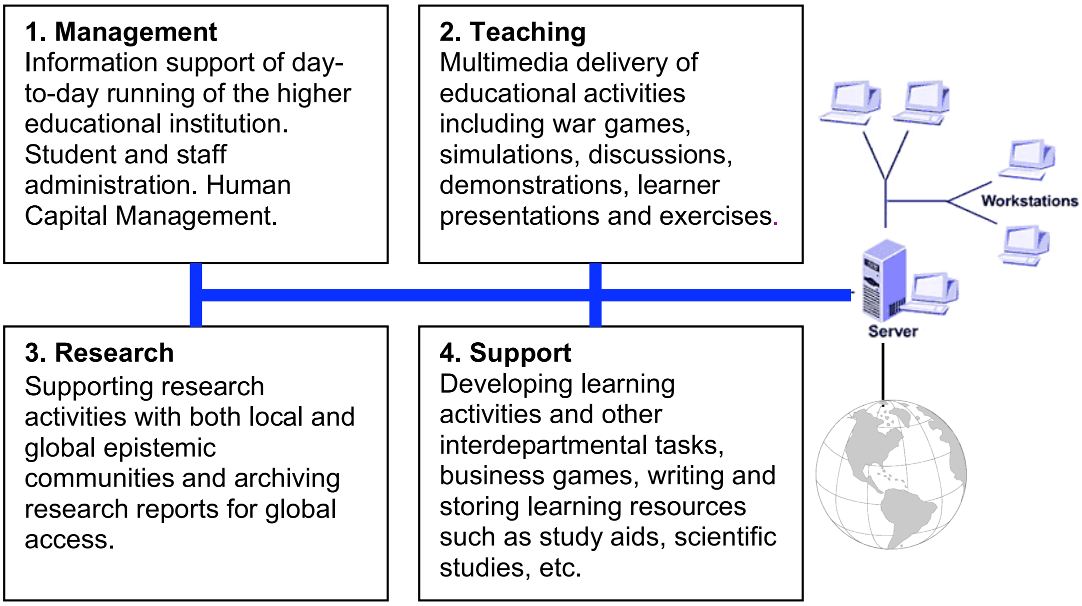

Figure 13 – IT Management System for Professional Military Learning

Modularisation

Modularisation is fundamental to improving Professional Military Learning. Even if long residential courses continue in the immediate future, tailored learning can still occur if the course is separated into modules. This will allow elective options for selected parts of the course as well as flexible learning for those who do not require a full course. These could include some international students who do not require depth in the local issues but need more general subjects.[10] This will also make attendance more attractive to students from other government agencies who currently avoid long military courses because the perceived return on investment is minimal. Reserve military personnel who cannot take long absences from their civilian employment could eventually piece together all, or most, of a standard course. Officers from all three Services will have easier access to other environment disciplines and other nation approaches.[11]

[9] V.M Barynkin, 'Informatization of Higher Military Educational Institutions: Problem and Solutions', *Military Thought*, Vol. 11, Issue 2, March–April 2002.

[10] Current examples of these include Pacific Island students who get minimal benefit from the intensive study of New Zealand or Australian government issues during long courses at either of those two colleges. Other examples might include civilian employees of Defence or other government agencies and foreign officers anticipating an exchange posting.

[11] Such as the doctrine, approach, and capabilities of the other two Services or equivalents in other militaries.

The system is intended to marry up with the NZQA linked PML continuum (Figure 11) extending throughout a career. The modules would be available through both local and global e-Learning, either pre or post staff course,[12] while others might be completed during the course. Posting types could receive credits as modules. For example, PML could recognise a tour as a sub-unit commander, peacekeeping, combat, or particular staff officer posts as lower-level modules. Officers, commanders, and career managers could then plot careers to ensure balanced development and progressive increments.[13] As with the current VESA system, students wishing to study modules deemed irrelevant by the military will need to fund the study privately.

Selected modules would be identified as compulsory for specified branches or career paths, but retain flexibility for individual cases. For example, those who instructed, or have extensive experience in a subject area, could be released from an introductory module such as battalion level operations, but be brought in for advanced modules like brigade level. Specialist officers or Defence civilians could attend introductory warfighting modules to gain an introductory appreciation, but branch off for other more relevant advanced modules in their own specialisation.

Network Centric PML – The Global Defence College

> Imagine giving students at one senior service college the opportunity to enrol in electives taught at another, or broadcast an address by the Secretary of Defense held at one college to the others … [this] would lead to an agile, flexible system of professional military education that could adapt to emerging needs and facilitate exchanges of ideas through dialogue.[14]

The concept of a *Global Defence College* includes an online portal where affiliated Defence colleges, and their partner universities, share modules.[15] The resultant opportunity allows students to increase their cross-pollination and networking with other nationalities, increase the size of their epistemic communities, personalise their education, and optimise their study to their preferred learning style. The concept also provides for flexible delivery, continuous learning, and an interactively stimulating learning environment.

While variations can be employed, the general concept involves Tier 3 and Tier 4 students studying a certain number of compulsory modules in additional to selecting from a large list of optional modules. Modules may or may not be residential, and

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[12] In this situation the 'staff course' refers to the core military subjects delivered by the Defence College, not academic subjects taught by universities.

[13] Most officer branches already have career progression plots with both postings and courses listed. These will be incorporated into the framework along with the progressively expanding list of approved modules from other institutes.

[14] George Reed, Craig Bullis, Ruth Collins and Christopher Paparone, 'Mapping the Route of Leadership Education: Caution Ahead', *Parameters*, Autumn, 2004, p. 59.

[15] A number of such portals already exist. For example, see eArmyU, PfP, APAN, and American Military University (links appear in the bibliography).

some will be local while others could be from partnering colleges. Depending on an officer's branch or corps, they can be restricted in the choice of optional modules.

The institutes can be from a wide range of academia. In-house modules from Defence colleges will be a major attraction, as will the existing modules used by their affiliated universities. But new and exciting opportunities also arise with smaller or specialised institutes offering perhaps only a single module. Examples include the RAAF Air Power Development Centre's Advanced Air Power Course or the ADF School of Languages, which is considering offering introductory foreign languages or cultural awareness modules. Annex B provides a small sample of institutes and courses that might be considered in such a framework.

Non-Academic Promotion Requirements

Current NZDF PME includes a number of non-academic topics that would not contribute toward a higher university education. Examples of these include introductory subjects (level one or two of Bloom's taxonomy) such as Law of Armed Conflict (LOAC) or Occupational Health and Safety. Others may include training, vice education, in skills like media interviews and formal presentation techniques. These subjects remain an essential part of an officer's professional development and need to be retained as part of the PML system. Non-academic subjects can be included in the PML Framework. While they probably will not contribute to the award of a university qualification, they can be listed as either prerequisites for academic subjects or as promotion requirements. Rather than making them part of an all-compulsory course, however, students will only complete the modules when they require them and to the level they are needed. For example, legal and combat arm corps officers will receive LOAC training earlier in their careers and will progress to higher levels, while other officers will only complete modules commensurate with appointments or promotion. Figures 15 and 16 show hypothetical examples of how non-academic subjects might alter for different corps and branches. The lighter shaded boxes indicate the range of modules available in a given subject area, while the darker area indicates the minimum level expected for that rank and/or position.

Master of Defence Studies

RNZN PWO T3 PML

Students are required to complete 48 Credits, 24 must be from the core list.

Core Subjects for PWOs (6 Credits each)

- NZ Strategic Environment (Victoria University, Massey University, Auckland University)
- Command Studies (Royal College of Defence Studies, or Australian Defence College)
- Joint Operations (ADFWC, Baltic Defence College, more)
- Staff Duties (NZDC, ACSC)

Approved optional subjects for PWOs (24 Credits required). Students may apply to their Head of Branch to include alternative optional courses.

Available	*General Topic Area (click on link to see specific course descriptions)*
6	12 credit Research Project (NZDC, NATO College, more)
20	Advanced Oceanography (ADFA, UCLA, more)
19	International Relations (SAIS, Otago University, Edinburgh University, more)
5	UNCLOS and other Law related (UN University, more)
24	Naval History (Naval War College, more)
85	Military History – General (enter)
5	Advanced Airpower (RAAF Air Power Development Centre, more)
8	Manoeuvre Warfare (Fort Leavenworth, more)
62	Introduction Language and Culture (NZDC, ADFLANGS, other languages)
102	Management – various (enter)
2	NZ Government System (Massey University, Victoria University)
12	6 Credit Research Essay (NZDC, Center For Security Studies, more)
8	United Nations & Peacekeeping (UNITAR POCI, University for Peace)
32	Intelligence (Canadian Forces Academy, eArmyU, more)
21	NGOs and Humanitarian Operations (ICRC, UNHCR, more)
8	Regional Studies (Sth Pacific University, Kings-London, ANU, Tokyo Uni, more)
34	Strategic Studies (SIPRI, GCSP, Oxford , ANU, eArmyU, more)

Figure 14 – A sample page of the Tier 3 PML System for Principle Warfare Officers showing hypothetical modules and institutes where the student can construct their own qualification

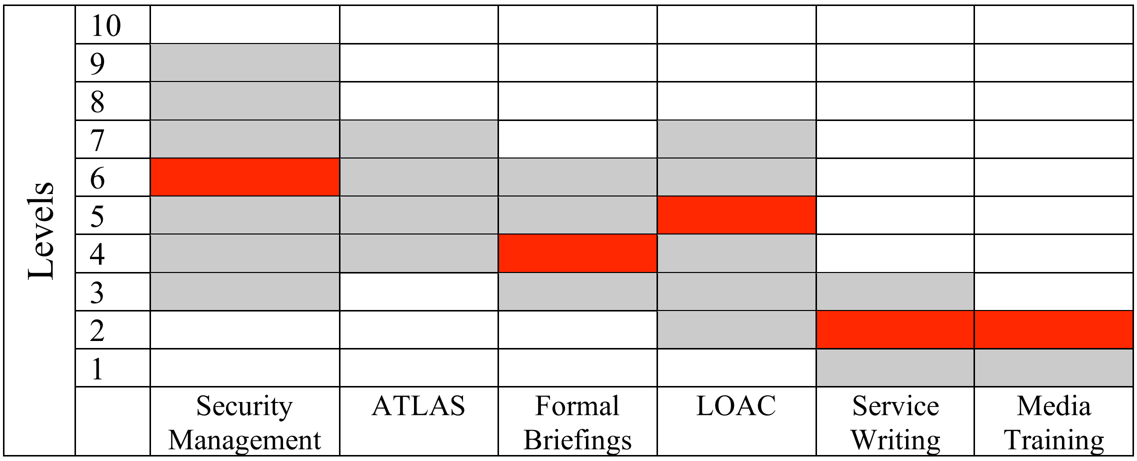

Figure 15 – Sample Page of the Tier 3 non-academic PML System for an Artillery Major

There are many non-academic military courses suitable for inclusion in this Framework. The ones shown in Figures 15 and 16 include classified material handling (Security Management), personnel management database (ATLAS), instructional techniques and related (Formal Briefings), Law of Armed Conflict (LOAC), written communication (Service Writing), and Media Training.

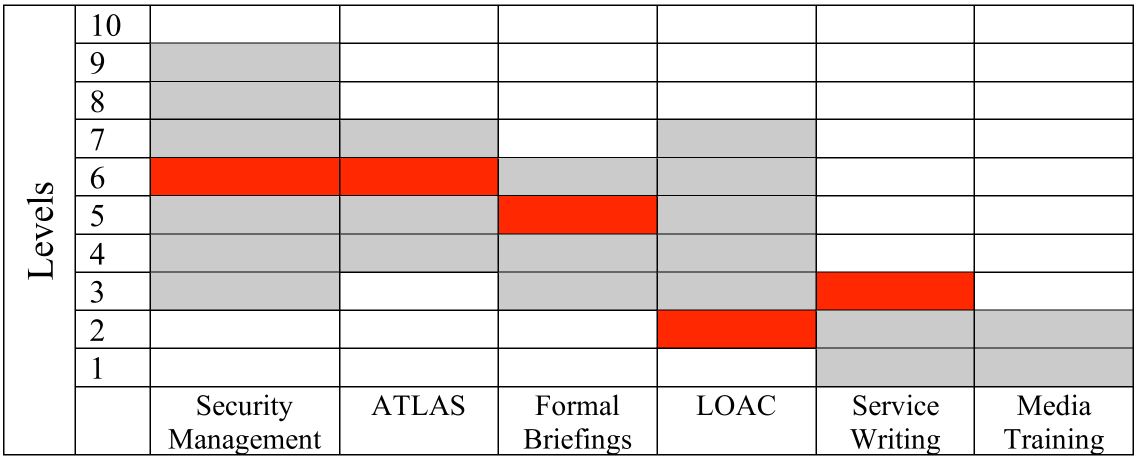

Figure 16 – Sample Page of the Tier 2 non-academic PML System for an Administrative Branch Flight Lieutenant

Summary

This chapter has outlined a way forward for Professional Military Education in the New Zealand Defence Force. It argues the next generation of PME should be continuous, flexible, universal, blended, globally networked and tailorable. By modularising courses into discrete subjects, learning can be tailored to better suit both the students' and the organisation's needs. Learning will involve modules from an international partnership portal where Defence and security related institutes share their courses. The framework will also provide a human capital management system and a collaborative research facility. Non-academic subjects will continue to be an important element of officer development but will vary depending on specific appointments or environmental streams.

Chapter 8

PML Challenges

> *We trained very hard, but it seemed that every time we were beginning to form into teams we would be reorganised. I was to learn later in life that we tend to meet any new situation by reorganising, and a wonderful method it can be for creating the illusion of progress, while producing confusion, inefficiency and demoralisation.*
>
> – General Gaius Petronius (d. AD 66)

‘Restructuring to give the illusion of progress’ is a popular criticism of many new proposals and perhaps none more so than changes to a military educational system, which many believe is not broken. But as Charles Darwin identified, ‘it is not the strongest of the species who survive, nor the most intelligent, but the ones most responsive to change’. Flexibility and change are a necessary feature of today’s military, but any change must be for the better.

This chapter acknowledges the challenges of PML to ensure any implementation plan is well informed. It begins with an overview of transition issues and the need for a comprehensive plan before exploring key areas in more depth. These areas include personnel, academic, and management concerns as well as cost implications.

Implementation Transition

Achieving a fully established PML framework will take time. In the short term, the expectation is to continue running the extant Tier 3 course, but allow students to enter and exit modules to suit work and other academic commitments. Where a student is studying full-time but not required for a standard module (and not expected back at the workplace), they can enrol in an alternative module from external institutes. Initially, these will be modules (papers) with institutes already in partnership with the NZDC, but in time more will be added. Some modules may be taken at overseas locations or via blended learning.

At the Tier 4 level, a new NZDF flavoured program will be established. This will involve a series of modules modelled on foreign Tier 4 courses, and may even include selected modules of those courses. The eventual intent will be for both Tier 3 and Tier 4 frameworks to align and permit different environmental specialities to identify core streams seamlessly progressing within the combined framework. The whole system will also link in with Tiers 1, 2 and 5 modules.

A key issue with implementing a PML framework is the need for it to be planned and resourced properly. The transition timeframe can, however, be spread over a number of years and be adjusted to suit both technology and funding availability. Another important point is that it does not need to be an ‘all or nothing’ implementation. Many of the benefits will stand-alone.

Implementation Planning

A comprehensive plan is essential. While implementing PML can be spread over time and may only involve part of the model proposed, the rollout must be planned. Failure to do so could result in its collapse due to eventual incompatibility problems,[1] lack of acceptance if not user-friendly from the outset,[2] and financial failure if inefficient or overly expensive to maintain and evolve.[3]

Initial failure can be difficult, if not impossible to recover from. Before implementation, success must be ensured for all parties involved—learners,[4] NZDC, career managers, and the workplace. e-Learning's current bad reputation stems from its premature launch based on promises not performance. A repeat will only reinforce this perception.

Change Management principles will need to be employed to ensure success. These include an enabling environment,[5] a singular vision with strong leadership,[6] critical mass,[7] and an incentive for all. Without universal support from the key NZDF sectors the system will falter. Any implementation plan will also need to consider the cultural elements involved in gaining acceptance by affected parties.[8]

Personnel Issues

The NZDF is too small to have overly specialised officers. A strength of the NZDF is having personnel available for a variety of jobs, anywhere, anytime. Care needs to be taken to ensure a minimum standard of general education is achieved. Studies identifying the desired outcomes of PME (PML) should be employed to manage compulsory and elective course options.[9] Institutional needs and individual interest areas will need to be balanced by career managers.

The value of foreign student exchanges and domestic networking will need to be preserved by retaining a residential college. For those students who prefer to learn in a face-to-face group discussion setting, or who need to be completely removed from the workplace, the NZDC needs to provide learning facilities. This will also provide the

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1 A number of technology standards need to be met (for example SCORM 1.2 and AICC) as well as academic ones (NZQA, New Zealand Quality Standards Framework, and other institute or governmental regulatory bodies).

2 This includes realistic support by career managers/NZDC and a workplace HRM policy.

3 For more on these, see New Zealand Ministry of Education, *Interim Tertiary e-Learning Framework*, March 2004, http://www.tec.govt.nz/downloads/a2z_publications/step-03-04.pdf, viewed 9 August 2004, pp. 5–11.

4 For an example, see Pamela Mendels, 'Study Finds Problems With Web Class', *New York Times*, 22 September 1999, http://www.nytimes.com/library/tech/99/09/cyber/education/22education.html, viewed 27 July 2004.

5 An 'enabling environment' is a precondition to change. These environments include: universal student access; reliable networks; multiple opportunities for training and consulting; and an ethos, which values experimentation and toleration of falters.

6 This includes a demonstrated support from the highest echelons of Defence.

7 Not only sufficient student and course numbers but also stable networks and system success.

8 For more on Change Management, see H. James Harrington, Daryl R. Conner and Nicholas L. Horney, *Project Change Management*, McGraw-Hill, USA, 2000.

9 An example of these studies is the NZDF Competencies Framework.

tangible face of PML by hosting block courses and seminars.[10] Both domestic and foreign students will be able to reside at the NZDC to complete their personalised course of study. Furthermore, current technology limits e-Learning effectiveness for certain subjects and students.

Networking is a major benefit of residential courses and must be replaced somehow. While technology will one day increase the interaction of online communication, it is unlikely to replace the traditional volleyball games, after-hours drinks, international days and other social calendar events. While the concept of modular PML is intended to increase the pool of people to network with, the online aspect will reduce the depth of social interaction.[11] Tours, visits, exchanges and high intensity residential seminars will be necessary to mitigate this loss. Militaries will need to consider expanding alternative vehicles for networking to offset what appears to be an enviable trend in higher education.

Academic Issues

Academic standardisation between institutes needs to be monitored. The academic standardisation board already proposed under the NZDC structure would need to oversee this process along with CLE credits. Existing guidelines exist in the civilian sector for awarding RPL and ACC, as well as inter-institute standardisation, such as ISO 9000 and the European Credit Transfer System (ECTS). For the NZDC, matriculation authority will only be maintained with an NZQA approved system.

Designing blended learning is an art. The NZDC will not be in a position to develop its own modules in the short term. The intent is to continue with existing NZDC modules residentially until sufficient training and infrastructural support permits a conversion. The first blended modules available to NZDF personnel will be from larger institutes, such as civilian universities. In time these will be complemented with modules from the NZDC and around the world.

Contracting developers to convert residential courses to blended media is an option. As is now well established, however, developing blended learning is more than dumping traditional lecture material online. Tony Bates, a leading expert in implementing educational technology, warns outsourcing needs to be carefully examined.[12] The real issue is how often and how specialised such modules will be and how much funding is available. Doing things cheaply can end in failure.

Management Issues

A strong HR system supporting flexible learning is essential. Current ADL initiatives for educational advancement lacking workplace support often result in the ‘two for

10 Some will be held at satellite campuses (Defence or universities) or at overseas locations.

11 A new social dynamic is expected to emerge over the next few years as electronic communication becomes normative—as occurred when telephones became widespread. An example of how this area is gaining prominence is in a recent study looking at interpersonal and interagency trust over military networks. Derek Bopping, *Secrecy and Service – Loyalty in the Australian Defence Force: Understanding the social-psychology of problematic non-disclosure*, unpublished PhD manuscript, Australian National University, 2004.

12 A.W. Bates, *Managing Technology Change*, Jossey-Bass, USA, 2000, pp. 146–8.

one' workday expectation by superiors. Enforced systems of 'duty study time'[13] will be necessary if units wish to avoid long absences to courses.[14] This is the major reason why ADL has not received total acceptance in many overseas systems.

Module timetabling and other commitments will necessitate careful time management. Full-time students' time between modules will need to be utilised with research and wider reading. Those not posted to full-time study will normally be able to return to primary duties between modules. Some modules may be suitable for those waiting for postings or out-of-sync with workplace activities.[15]

A benefit of long residential courses is the time-out it affords busy officers to recharge between high stress postings. Full-time study schemes and overseas sabbaticals should be retained to address this need. This is particularly important for officers who have completed their 20-year contract and are considering a second career. The one-year break from a stressful job could make the difference in choosing to stay in the military. Modular and tailored learning need not always be part-time.

Cost

The intended benefits of the PML framework include better efficiency and academic effectiveness vice saving money. Where cost savings are made, these should be reinvested into the system to provide increased access to more members and better quality programs.[16] While research suggests blended learning is cheaper than residential, this paper is unable to provide a detailed cost-benefit analysis of the PML framework or a Global Defence College system.

The costs of PML can be divided into the purchase price for external modules and the cost of administering an LMS framework.[17] The latter also includes any NZDC offered modules. The prices of externally provided modules change based on market forces and interagency relationships. For example, many Defence colleges have a cost-neutral reciprocal arrangement or some other form of bilateral agreement where student fees are subsidised.

Summary

PML is a long-term vision. Its implementation can be spread over time, provided it is properly planned. It will require a robust structure to ensure success and maximise the

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13 Also known as 'fencing' in reference to the partitioning of study from work commitments.

14 For example one day a week physically removed from the workplace to complete study was implemented in the Australian Army. Attendance on the NZDF CSC is almost always a secondment, not a posting. This means units lose the officer on a 'not replaced' basis and must carry the vacancy for six (soon eight) months.

15 Such as exercises or deployments.

16 The NZDF differentiates between work-required education and voluntary study. The former is paid by the NZDF in advance, while the latter became refund-based in the 1990s due to poor completion rates. If PML replaces PME, then it should be funded and supported in the same way existing courses are, not as VESA.

17 For more on this refer to the previous chapter, or see V.M. Barynkin, 'Informatization of Higher Military Educational Institutions: Problem and Solutions', *Military Thought*, Vol. 11, Issue 2, March–April 2002.

benefits. A number of issues will need to be resolved including a whole-of-Defence HR policy on PML, academic standardisation, and adequate funding. Financial support will be necessary to establish and maintain the LCMS as well as purchasing external modules. The aim of the system is to improve the quality and access of PML to Defence personnel. Fundamental to the quality issue will be the dual access to New Zealand specific security issues and diverse topics only available internationally.

Chapter 9

Coup de Grâce

Skate to where the puck is going, not to where it is.

– Wayne Gretzky

The intent of this paper is to guide future PME developments to where the puck will be. Having reviewed the current situation and problems facing PME in the NZDF, this paper scanned the international scene to reveal emerging trends in other militaries. From here attention was given to the latest understanding of adult learning and higher education developments in the civilian sector. This led to a review of educational technology and what it might offer military education.

This study advocates a whole-of-career PML framework for NZDF personnel. While Tiers 1 and 2 were not the focus of this study, the current initiatives to unify the three Services' systems will be compatible with the proposal. The major changes recommended include expanding the current domestic Tier 3 course with a framework of modules and increasing access to international study. At the Tier 4 level, where no domestic system currently exists, the same approach advocated for Tier 3 will seamlessly extend up to the highest levels.

This paper contends the current PME system is losing relevance in today's military. Leaving the *what* question to other studies, it challenges *who*, *where*, *when*, *why*, and *how* PME must change in the 21st century.

Who. The rapidly changing world of strategic uncertainty and high personnel tempo means any officer could find himself or herself in a position where there is a need to respond clearly and decisively to increasingly complex issues. Overseas militaries are moving toward a more universal access system to provide a greater number of military personnel PME. The NZDF, with a small pool of personnel, needs to review current throughput rates to ensure sufficient numbers are pursuing education. Technological advancements are offering a more cost-effective and flexible method of allowing greater access for the same cost as the current selective system.

Where. Technology is making flexible learning a viable alternative to many residential courses. As digital natives become the dominant student body and business applications reflect educational systems, the transition to blended learning will appear natural. While residential modules will have a role, long absences from the workplace will become less tolerable in a smaller Defence Force.

When. Emerging generations of military leaders are influenced by their cohort culture. They have an expectation for continuous learning. The rapidly changing security environment means one-off educational courses are less relevant now than during the relatively stable Cold War era. The current legacy system reflects a number of systemic limitations no longer relevant in today's technologically enhanced military. Continuous, short modules should dovetail better with both operational and personal needs.

Why. To remain relevant in a rapidly changing world of military capability, the NZDF needs to evolve. Network Centric Warfare and other RMA developments mean the NZDF must remain intellectually interoperable with its allies. The NZDF also needs to remain relevant to its future generation of personnel. The civilian educational sector is giving digital natives an expectation of technology-based, media-rich, and continuous education.

How. A synergistic benefit of evolving to blended learning will be the opportunity to provide individualised learning. Constructivism will become the norm in the unleashed world of higher education. The military has the opportunity to expand its human capital by allowing its members to pursue mutually advantageous areas in a way that their learning will be more effective and more efficient.

Based on trends in both the civilian education sector and the military, ICT and network centricity is going to influence everything we do from warfighting to everyday staff work and learning. This trend is expected to increase as technology improves and digital natives dominate the workforce. It is anticipated PME will evolve naturally with these external developments to include blended learning. But unless planned, ad hoc increments could see critical elements of the existing PME system being lost.

A fundamental question, for those who must accept or reject the PML thesis, relates to the *raison d'être* of the current PME system. If it is for content alone, then e-Learning will suffice. If it is for affective domain skills and socialisation (acculturation, inculcation, networking and command skills, such as written and oral communication), then content is largely irrelevant and a more honest set of outcomes should be identified. If the answer is both, then something more than just e-Learning is required and strategic implementation planning will be essential.

The things that count the most are the things that cannot be counted.
– Bernard Meltzer

The rollout of a PML framework must be carefully planned to ensure the intangibles are not lost and promises do not exceed achievement. While not all elements need to be incorporated, this paper proposes the next generation of PME should be modular, continuous, universal, tailorable, blended, globally networked and learner-centric. If the rate of change within the NZDF is slower than the rate of change outside, then the outcome is predictable.[1]

> Victory smiles on those who anticipate the changes in the character of war, not upon those who wait to adapt themselves after the changes occur.
>
> – Giulio Douhet

[1] Adapted from a quote by Jack Welch, Chairman and CEO, General Electric, quoted in M. Rosenburg, *e-Learning Strategies for Delivering Knowledge in the Digital Age*, McGraw-Hill, United States, 2001, p. 233.

Annex A – History of PME in New Zealand

The short history of PME in New Zealand reflects the relative youth of the three Services. The following timeline highlights many of the key dates in the history of PME across the three Services of the NZDF.

1907	Lieutenant Colonel Chaytor became the first New Zealand officer to attend the British Army Staff College in Camberly.[1]
1911	First ten officer cadets commenced training at Royal Military College (RMC) Duntroon, Australia. At that time, RMC conducted general military education rather than initial officer training, as it does today. In 1968 it began awarding university qualifications.
1927	Major Jennings became the first New Zealand officer to attend the Imperial Defence College (now Royal College of Defence Studies) in London.
1928	First joint exercise conducted in New Zealand using air, land and sea forces.
1937	RNZAF officially formed as an independent Service.
1938	RNZAF appoints first two Education Officers (at RNZAF Bases Wigram and Hobsonville).
1941	RNZN officially formed as an independent Service.
WWII	A temporary staff college was established in the refectory building of what is today the Palmerston North Campus of Massey University.
1950	RNZAF established the Command and Staff College to educate flight lieutenants. Squadron Leader Abernethy attended No 2 RAAF CSC in Australia.
1951	The first two RNZAF officer cadets commenced undergraduate studies at the RAAF College at Point Cook, Australia.
1956	The first two NZ Army officer cadets attended Australian Army Officer Cadet School at Portsea, Australia.
1959	RNZAF CSC began teaching a six-month staff course at squadron leader level. The course (No 1) included two RNZN officers. The first exercises and exchanges between NZ, Australia and the US were conducted.
1960	RNZAF No 2 Staff Course included two RNZN officers and a civilian.
1961	The first Army apprenticeships commenced. This was a first for NZ as the apprentices were examined by the Cookery and Food Association of London.

1 Michael R. Wicksteed, *A Chronology of the New Zealand Army: 1827–1986*, Government Printer, Wellington, 1986, p. 10.

1963	The first NZ Army Officer attended the RNZAF CSC (No 4 Course) and the first USAF Directing Staff (DS) commenced at RNZAF CSC. The exchange continued until 1968.
1968	The NZ Army began providing a Directing Staff member to RNZAF CSC.
1974	The first NZ Police Officer attended the RNZAF CSC (No 15 Course).
1976	The first overseas officers attended the RNZAF CSC (No 17 Course).
1982	Lieutenant Commander Jury attended No 8 RAN Staff Course.
1984	Commander Jury returned to Australia as the NZ DS at the RAN Staff College.
1985	The [Army] Officer Cadet School of New Zealand was established replacing the Officer Cadet Training Unit and the Officer Cadet Training Company.
1986	The Australian Defence Force (ADF) established a joint academy (ADFA), replacing RMC Duntroon, the RAAF College, and HMAS Cresswell. The NZDF continues to send officer cadets to ADFA to complete undergraduate degrees as well as commissioned officers for higher courses.
2002	RNZAF CSC renamed NZDF CSC.
2004	NZDF CSC moved from RNZAF Base Auckland (Whenuapai) to Trentham Military Camp, near Wellington.

Annex B – Currently Available Courses

This annex provides a small sample of existing online programs and modules to illustrate the plethora of courses already available for a globally networked PML framework. In most cases, only the Defence or Security Studies courses have been listed, even though hundreds more interdisciplinary modules would also be relevant to PML.

The subjects or institutes listed do not imply an endorsement for their inclusion in a PML framework.

American Military University (AMU)

This university offers a wide range of qualifications through DL. They have 30 different masters programs, each with dedicated core and elective modules. In all, there would be around 500 separate courses available to foreign officers.[1]

Australia National University (ANU) Research School of Pacific and Asian Studies

ANU offers a Master of Arts (Strategic Studies), a Master of Strategic Studies, or a Graduate Diploma in Strategic Studies. The specialisations available within these programs include: arms control, Asia–Pacific security, Australian Defence, China's security, intelligence, international crime, strategic geography, strategic planning, terrorism, and Thailand's security. They currently deliver the courses at a number of satellite campuses, including Bangkok, Melbourne, Perth, Taipei, Tokyo and Washington DC.

Australia New Zealand School of Government (ANZSOG)

Executive Masters Program

Selected ANZSOG subjects in the Executive Master of Public Administration degree could help fill the void of New Zealand specific learning required for NZDF officers who obtain the majority of their education from foreign institutes. The core ANZSOG subjects are all accredited by member universities, who award the degree. This means that ANU and Victoria University of Wellington have the subjects already accredited.[2]

Australian Defence Force Academy (ADFA)

ADFA offers courses, both residentially and via DL, in a wide range of Defence related subjects. A selection of their postgraduate programs include Aerospace; Civil, Electrical and Mechanical Engineering; Mathematics; Physics; Chemistry; Business; IT; History; Politics; Defence; English; Oceanography; and Geography.

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1 For more, visit their website at http://www.apus.edu/amu/.

2 For more, visit their website at http://www.anzsog.edu.au.

eArmyU

This is the US Army's online brokerage, linking 29 universities and currently offering over 140 different degree programs. The number of individual courses/papers available is commensurately large.

Geneva Centre for Security Policy (GCSP)

The GCSP offer a number of courses from Tier 3 to 5 for both Swiss and international students. Their courses are delivered both residentially and through blended learning. Furthermore, they have specifically broken their courses into modules to suit those students who cannot take an entire year out of their posts.[3]

International Relations Security Network (ISN)[4]

The ISN is part of the Centre for Security Studies in Zürich and represents part of the Swiss national contribution to the PfP consortium. Their ISN portal delivers educational resources, such as an interactive timeline, as well as course modules. The following five are the first of many to come:

- International Security Risks
- Security Policy, International Relations, and Information Technology (SPIRIT)
- Chemical and Biological Weapons Non-proliferation
- Introduction to NATO
- Introduction to Human Rights

Massey University New Zealand

Master of Philosophy in Defence Studies

200.761	International Relations
149.701	New Zealand's Strategic Environment
149.702	New Zealand's Defence Policy
149.703	Modern Campaign Studies
149.704	Command Studies
149.705	Strategic Issues in New Zealand's Defence and Foreign Policy
149.708	Joint Services Campaigning

3 For more, visit their website at http://www.gcsp.ch/e/training/E-learning/background.htm.

4 For more, visit their website at http://www.isn.ethz.ch/elearning/dl/courses.cfm?menu=2.

Royal Military College Canada[5]

Master of War Studies

Hist 6825	Themes in 20th Century Warfare
WS 500	The Theories of War from the 18th Century to the Present
WS 502	War, Politics and International Relations
WS 512	Canadian Defence Studies: Historical and Contemporary Dimensions
WS 520	Maritime Strategy and Naval Policy
WS 524	The Impact of Total War in the 20th Century
WS 532	American, Foreign and Defence Policy Since 1776
WS 532	American, Foreign and Defence Policies
WS 584	Canadian Foreign Policy
WS 530	Psychological Factors in Warfare and Human Conflict

UN Institute for Training and Research Programme of Correspondence Instruction in Peacekeeping Operations

According to their web site,[6] thousands of students from 65 different nations have enrolled in these correspondence courses. Most are military officers but others include non-commissioned officers, diplomats, civilian employees of ministries of defence, teachers, and interested citizens.

All are taught in English, and some are also offered in Spanish, French, German, and Swahili. Prices range between US$95–145.

- Commanding UN Peacekeeping Operations: Methods and Techniques for Peacekeeping on the Ground
- International Humanitarian Law and the Law of Armed Conflict
- Peacekeeping and International Conflict Resolution
- Principles for the Conduct of Peace Support Operations
- Global Terrorism
- Peacekeeping in the Former Yugoslavia: from the Dayton Accord to Kosovo
- History of United Nations Peacekeeping: 1945–1987
- History of United Nations Peacekeeping: 1988–1997
- Logistical Support of United Nations Peacekeeping Operations
- Operational Logistical Support of UN Peacekeeping Missions: Intermediate Logistics Course
- Mine Action: Humanitarian Impact, Technical Aspects, and Global Initiatives
- Serving as a UN Military Observer
- United Nations Civilian Police: Restoring Order Following Hostilities
- An Introduction to the UN System: Orientation for Serving on a UN Field Mission
- The Conduct of Humanitarian Relief Operations
- Security Measures for United Nations Peacekeepers

5 For more, visit their website at http://www.rmc.ca/academic/warstudy/index_e.html.
6 For more, visit their website at http://www.unitarpoci.org./en/courses.html.

Universitas 21

Master of Business Administration

A global network of 17 major universities in 10 countries (including Australia and New Zealand). Formed in 1997, Universitas 21 involves traditional collegial activities such as student exchange programs, sharing of learning materials, and a virtual university (Universitas 21 Global) offering online Masters of Business Administration.[7]

Victoria University of Wellington[8]

Master of Strategic Studies

STRA501 Strategy: Theory, Policy & Practice
STRA502 Strategic Analysis
STRA503 International Political Economy
STRA504 Strategic Issues in Foreign Policy
STRA511 Strategic Thinking for Managers & Analysts

7 For more, visit their website at http://www.u21global.com.
8 For more, visit their website at http://www.sog.vuw.ac.nz/vuw/content/school.cfm?school=sog.

Bibliography

Books

Alberts, D.S., Garstka, J.J. and Stein, F.P., *Network Centric Warfare – Developing and Leveraging Information Superiority*, Second Edition, C4ISR Cooperative Research (CCRP), 2000.

Allen, I.E. and Seaman, J., *Sizing the Opportunity – The Quality and Extent of Online Education in the United States, 2002 and 2003*, The Sloan Consortium, USA, 2003.

Bate, P., *Strategies for Culture Change*, Butterworth Heinmann, 1994.

Bates, A.W., *Managing Technology Change*, Jossey-Bass, USA, 2000.

Bates, A.W. and Bartolic, S., *Assessing the Costs and Benefits of Telelearning – Six Case Studies*, University of British Columbia/National Centre of Excellence in Telelearning, Vancouver, 1999.

Bloom, B.S. (ed.), *Taxonomy of Educational Objectives: The Classification of Educational Goals – Handbook 1: Cognitive Domain*, Longmans, Green, New York, Toronto, 1956.

Converse, E.V. (ed.), *Forging the Sword – Selecting, Educating, and Training Cadets and Junior Officers in the Modern World*, Imprint Publications, Chicago, 1998.

Cooper, C.L. (ed.), *Theories of Group Process*, John-Wiley, London, 1975.

Cope, J.A., *International Military Education and Training – An Assessment*, Institute for National Strategic Studies, National Defence University, Washington, 1995.

Cotton, J., *The Theory of Learning*, Kogan Page, London, 1995.

Coulthard-Clark, C., *Duntroon – The Royal Military College of Australia 1911–1986*, Allen & Unwin, Sydney, 1986.

Darwin, C., *Origin of the Species*, John Murray, London, 1859.

Dertouzous, M., *What Will Be – How the New World of Information will Change our Lives*, Harper-Collins, 1997.

Driscoll, M., *Psychology of Learning for Instruction*, Second Edition, Allyn & Bacon, Boston MA, 2000.

Dutton, W.H. and Loader, B.D., *Digital Academe – The New Media and Institutions of Higher Education and Learning*, Routledge, London, 2002.

Ellington, H.I., *How to Become an Excellent Tertiary-Level Teacher – Seven Golden Rules for University and College Lecturers*, Centre for the Enhancement of Learning and Teaching, Robert Gorton University, Aberdeen, 2000.

Elton, L., *Teaching in Higher Education – Appraisal and Training*, Kogan Page, London, 1978.

Florian, H. (ed.), *Military Pedagogy – An International Survey*, Studies for Military Pedagogy, Military Science and Security Policy, Peter Lang, Germany, 2002.

Franke, V., *Preparing For Peace – Military Identity, Value Orientations, and Professional Military Education*, Praeger Publishers, Westport, 1999.

Frost, R.E., *RAAF College and Academy 1947–86*, Commonwealth of Australia, 1991.

Fry, H., Ketteridge, S. and Marshall, S., *A Handbook for Teaching and Learning in Higher Education*, Kogan Page, London, 1999.

Gelb, M.J., *Present Yourself*, Jalmar Press, California, 1988.

Harrington, H.J., Conner, D.R. and Horney, N.L., *Project Change Management*, McGraw-Hill, USA, 2000.

Honigman, R.D., C*hoosing a College – Why the Best Colleges May Be Your Worst Choice*, Ingram Book Group, 2003.

Hurst, D., *Strategy and Red Ink – A History of RAAF Staff College 1949–1999*, Aerospace Centre, Canberra. 2000.

Husen, T. and Postlethwaite, T.N. (eds.), *International Encyclopaedia of Education*, Pergamon Press, Oxford, 1995.

Janowitz, M., *The Political Education of Soldiers*, Sage Publications, Beverly Hills, 1983.

Knowles, M.S. (ed.), *Andragogy in Action*, Jossy-Bass, California, 1994.

Knowles, M., *The Adult Learner – A Neglected Species*, Gulf Publishing, Texas, 1986.

Kolb, D.A., *Experiential Learning – Experience as the Source of Learning and Development*, Prentice-Hall, New Jersey, 1984.

Krathwohl, D.R., Bloom, B.S. and Masia, B.B., *Taxonomy of Educational Objectives: The Classification of Educational Goals – Handbook II: Affective Domain*, David McKay Co., New York, 1964.

Moffat, J. and Howard, D.J., *Complexity Theory and Network Centric Warfare (Information Age Transformation Series)*, CCRP Publications Distribution Center, 2003.

Moore, D., *Duntroon – The Royal Military College of Australia 1911–2001*, Oxford University Press, 2001.

Moore, W.G., *The Tutorial System and Its Future*, Pergammon Press, 1968.

O'Dell, C. and Grayson, C.J., *If Only We Knew What We Know – The Transfer of Internal Knowledge and Best Practice*, Free Press, 1998.

Ramsden, P., *Learning to Teach in Higher Education*, Routledge, London, 1992.

Roblyer, M.D. and Edwards, J., *Integrating Educational Technology into Teaching*, Second Edition, Merrill/Prentice-Hall, New Jersey, 2000.

Rosenburg, M., *e-Learning Strategies for Delivering Knowledge in the Digital Age*, McGraw-Hill, United States, 2001.

Rumble, G., *The Costs and Economics of Open and Distant Learning*, London, Kogan Page, 1997.

Simons, W.E. (ed.), *Professional Military Education in the United States – A Historical Dictionary*, Greenwood Press, Westport, 2000.

Smith, H., *A Brave New World? Personnel, Education and Training Issues for the ADF in the Defence Efficiency Review*, Australian Defence Studies Centre, 1997.

Stiem, J., *US Army War College: Military Education in a Democracy*, Temple University Press, Philadelphia, 2002.

Thomas, K., *Leadership Development: To What End, By What Means?* Graduate School of Management, La Trobe University, Australia, 2003.

Tobias, S. and Fletcher, J.D., *Training and Retraining: A Handbook for Business, Industry, Government, and the Military*, Macmillan Publishing, New York, 2000.

Toiskallio, J. (ed.), *Mapping Military Pedagogy In Europe*, Department of Education, Finnish National Defence College, Helsinki, 2000.

van Creveld, M., *The Training of Officers – From Military Professionalism to Irrelevance*, The Free Press, New York, 1990.

Vella, J., Berardinelli, P. and Burrow, J., *How Do They Know They Know – Evaluating Adult Learning*, Jossey-Bass, California, 1998.

von Caemmerer, R., *The Development of Strategical Science During the Nineteenth Century*, Hugh Rees, London, 1905.

Web-Based Education Commission, *The Power of the Internet for Learning – Moving from Promise to Practice*, Washington DC, 2000.

Wicksteed, M.R., *A Chronology of the New Zealand Army, 1827–1986*, Government Printer, Wellington, 1986.

Young, F.W., *The Story of the Staff College, 1858–1958*, Camberley, 1958.

Journals

Adkins, S.S., 'Beneath the Tip of the Iceberg: Technology Plumbs the Affective Domain', *T + D*, Alexandria, Vol. 58, Issue 2, February 2004.

Air War College, 'Professional Military Education in 2020', A SPACECAST 2020 White Paper, *Airpower Journal*, Summer, 1995.

Ali, A., 'Applying Constructivism in a Traditional Environment', *Academic Exchange*, Spring, 2004.

Baker, J.D., 'An Investigation of Relationships Among Instructor Immediacy and Affective and Cognitive Learning in the Online Classroom', *Internet and Higher Education*, Vol. 7, 2004.

Barrett, A.J., 'The Promise and Pitfalls of Distributed Learning', *Canadian Military Journal*, Spring, 2003.

Barynkin, V.M., 'Informatization of Higher Military Educational Institutions: Problem and Solutions', *Military Thought*, Vol. 11, Issue 2, March–April 2002.

Baskin, R. and Schneider, D., 'Learning as a Weapon System', *Air & Space Power Journal*, Vol. 17, Issue 2, Summer, 2003.

Battersby, J., 'Tying e-Learning Together', *Military Training Technology*, Vol. 8, Issue 1, 1 January 2003, http://www.mt2-kmi.com/archive_article.cfm?DocID=225, viewed 3 August 2004.

Beckett, H., 'Blend Skills for a Better Class of e-Learning', *Computer Weekly*, 20 January 2004.

Ben-Ari, M., 'Constructivism in Computer Science Education', *Journal of Computers in Mathematics and Science Teaching*, Vol. 20, Issue 1, 2001.

Blass, E., 'The Future University: Towards a Normative Model from an Emerging Provision of Higher Education in Britain', *Futures Research Quarterly*, Vol. 19, No. 4, 2003.

Bonin, J.A. and Crisco, T.E., 'The Modular Army', *Military Review*, March–April 2004.

Bradford, J., Leher, E. and Smith, D.A., 'Alternatives to Today's Military Academies', *The American Enterprise*, Washington, Vol. 10, Issue 4, July–August 1999.

Brotherton, P., 'Education at their Command', *Black Issues in Higher Education*, Reston, Vol. 19, Issue 19, 7 November 2002.

Burger, K., 'US Must Train "Thinking" Troops', *Janes Defence Weekly*, 13 August 2003.

Burridge, B., 'Post-Modern Military Education: Are We Meeting the Challenge?', *Defence Studies*, Vol. 1, No. 1, Spring, 2001.

Centre for Strategic Studies, 'Australia and New Zealand: The Defence Policy Gulf', *Strategic Briefing Papers*, Vol. 4, Part 2, November 2000.

Cheese, P., 'How do Learners Define Blended Learning?', *Learning & Training Innovations*, ABI/INFORM Global, Vol. 4, Issue 2, February–March 2003.

Clift, A.D., 'Intelligence Education for Joint War Fighting', *Joint Force Quarterly*, Spring, 1999.

Curry, J., 'The Global Virtual University: Dream or Reality?', *NORDINFO-NYTT*, April 2001, http://www.nordinfo.helsinki.fi/publications/nordnytt/nnytt4_01/curry.htm #Why%20are, viewed 2 August 2004.

Diaz, D.P., 'Carving a New Path for Distance Education Research', *The Technology Source*, March–April 2000.

Diaz, D.P. and Cartnal, R.B., 'Students' Learning Styles in Two Classes: Online Distance Learning and Equivalent On-Campus', *College Teaching*, Vol. 47, Issue 4, 1999.

Donahoe, P.J., 'Preparing Leaders for Nationbuilding', *Military Review*, May–June 2004.

Drucker, P.F., 'The Age of Social Transformation', *The Atlantic Monthly*, 274, No. 5, November 1994.

Ehrmann, S.C., 'Asking the Right Question: What Does Research Tell Us About Technology and Higher Learning?', *Change*, Vol. 29, Issue 2, March–April 1995.

Elliot, A., 'IT in Schools', *Information Age*, Australian Computer Society, June 2004.

Ferguson, C.M. and Thompson, D.C., 'Improving Professional Military Education at Marine Corps University', *Marine Corps Gazette*, Vol. 2, Issue 7, 2002.

Flowers, M., 'Improving Strategic Leadership', *Military Review*, March–April 2004.

Fought, S.O., 'The War College Experience', *Academic Exchange Quarterly*, Vol. 8, Issue 2, Summer, 2004, http://rapidintellect.com/AEQweb/cho25754l.htm, viewed 2 August 2004.

Garrison, D.R. and Kanuka, H., 'Blended Learning: Uncovering its Transformative Potential in Higher Education', *Internet and Higher Education*, Vol. 7, 2004.

Girard, J., 'Defence Knowledge Management: A Passing Fad?', *Canadian Military Journal*, Summer, 2004.

Grey, J., 'Professional Military Education and the ADF', *Defender – The National Journal of the Australian Defence Association*, Vol. XXI, No. 3, Spring, 2004.

Hankins, M.L., 'Distance Learning Providers Do Their Own Homework', *Signal*, Vol. 54, Issue 5, 2000.

Hara, N. and Kling, R., 'Students' Frustrations with a Web-Based Distance Education Course: A Taboo Topic in Discourse', *Information, Communication & Society*, Vol. 3, Issue 4, 2000.

Harmon, S.W. and Jones, M.G., 'The Five Levels of Web Use in Education: Factors to Consider in Planning Online Courses', *Educational Technology*, Vol. 39, Issue 6, 1999.

Holder, L.D. and Murray, W., 'Prospects for Military Education', *Joint Force Quarterly*, Spring, 1998.

Iversen, A., 'Professional Military Education for Company Grade Officers: Targeting for "Affect"', *Aerospace Power Journal*, Summer, 2001.

Kelley, J.W., 'Brilliant Warriors', *Joint Force Quarterly*, Spring, 1996.

Kenny, S.H., 'Professional Military Education and the Emerging Revolution in Military Affairs', *Air & Space Power Journal*, Vol. 10, Issue 3, Fall, 1996.

Kring, N., 'MBAs Build War Fighters', *Proceedings*, March 2004.

Kumar, V.R., 'Go for Collaberation: Classroom-based learning and e-Learning can be combined for blended programme. That would be making the best of two options', *Businessline*, 18 June 2003.

Langford, R., 'BT wins MoD e-Learning contract', *Netimperative*, London, 3 June 2004, http://www.netimperative.com/cmn/viewdoc.jsp?cat=all&docid=BEP1_News_0000065910, viewed 2 August 2004.

Last, D., 'Military Degrees: How High is the Bar and Where's the Beef?', *Canadian Military Journal*, Summer, 2004.

Lawlor, M., 'On-line Strategies Require Close Examination', *Signal*, Vol. 54, No. 5, 2000.

Leib, S., 'Principles of Adult Learning', *Vision*, Fall, 1991.

Lipshitz, R., 'Knowing and Practicing: Teaching Behavioural Sciences at the Israel Defence Forces Command and General Staff College', *The Journal of Management Studies*, Vol. 20, Issue 1, 1983.

McCarter, M., 'Striking it Rich', *Military Training Technology*, 19 July 2004, http://www.mt2-kmi.com/articles.cfm?DocID=543, viewed 2 August 2004.

McCausland, J.D. and Martin, G.F., 'Transforming Strategic Leader Education for the 21st Century Army', *Parameters*, Autumn, 2001.

McCray, G.R., 'Training the Command', *Military Training Technology*, 19 July 2004, http://www.mt2-kmi.com/articles.cfm?DocID=544, viewed 2 August 2004.

McGorry, S.Y., 'Measuring Quality in Online Programs', *Internet and Higher Education*, Vol. 6, 2003.

Mendels, P., 'Study Finds Problems With Web Class', *New York Times*, 22 September 1999, http://www.nytimes.com/library/tech/99/09/cyber/education/22education.html, viewed 27 July 2004.

NEA Higher Education Research Center, 'The Promise and the Reality of Distance Education', *Update*, Vol. 8, No. 3, October 2002.

Newland, S.J., 'A Centennial History of the US Army War College', *Parameters*, Autumn, 2001.

Nicholls, N. and Tagarev, T., 'What Does Chaos Theory Mean for Warfare?', *Airpower Journal*, Fall, 1994, http://www.airpower.maxwell.af.mil/airchronicles/apj/apj94/fall94.html, viewed 3 August 2004.

New Zealand Press Association, 'A Cellphone is a Girl's Best Friend', *New Zealand Herald*, 11 March 2004.

Prior, J., 'Online Degrees are Making the Grade', *New Jersey Business*, Newark, Vol. 49, Issue 11, 2003.

Reed, G., Bullis, C., Collins, R. and Paparone, C., 'Mapping the Route of Leadership Education: Caution Ahead', *Parameters*, Autumn, 2004.

Rola, M., 'Don't Forget the Human Touch', *Computing Canada*, Vol. 29, Issue 8, 2003.

Rovai, A.P., 'A Practical Framework for Evaluating Online Distance Education Programs', *Internet and Higher Education*, Vol. 6, 2003.

Rovai, A.P., 'A Constructivist Approach to Online College Learning', *Internet and Higher Education*, Vol. 7, 2004.

Rowley, J., 'Creating a Learning Organisation in Higher Education', *Industrial and Commercial Training*, Vol. 30, No. 1, 1998.

Saba, F. 'Year in Review: Who will Thrive and Prosper in the Pivotal Year Ahead?', *Distance Educator*, 2001, http://www.distance-educator.com/dn/dnews.php4?action=detail&id=5889.

Schorm, S., 'What Do the Commanders and Students of Military Schools in Europe Mean About Military Education?', *The Journal of Slavic Military Studies*, Vol. 9, No. 1, 1996.

Schneider, J.J., 'Transforming Advanced Military Education', *ARMY*, January 2005.

Schraw, G. and Dennison, R.S., 'Assessing Metacognitive Awareness', *Contemporary Educational Psychology*, Vol. 19, No. 4, 1994.

Schwartz, N.H., Andersen, C., Hong, N., Howard, B. and McGee, S., 'The Influence of Metacognitive Skills on Learners' Memory of Information in a Hypermedia Environment', *Journal of Educational Computing Research*, Vol. 31, No. 1, 2004.

Shelton, H.H., 'Professional Education: The Key to Transformation', *Parameters*, Autumn, 2001.

Sheth, R., 'Avatar Technology: Giving a Face to the e-Learning Interface', *The e-Learning Developers' Journal*, 25 August 2003.

Sims R., 'Transforming Learning: Brief Reflections on Design for effective online Learning Environments', *OLT 2003 Excellence – Making the Connections*, Queensland University of Technology, 2003.

Singh, P. and Pan, W., 'Factors Affecting Student Adoption of Online Education', *Academic Exchange*, Spring, 2004.

Smith, H., 'Education and excellence in the ADF', *Asia–Pacific Defence Reporter*, Vol. XXIV, No. 2, February–March 1998.

Smith, J.M., 'Expeditionary Leaders, CINCs, and Chairmen – Shaping Air Force Officers for Leadership Roles in the Twenty-First Century', *Aerospace Power Journal*, Winter, 2000.

Smith, J.M. and Murray, D.J., 'Valuing Air Force Education and Training: Faculty Duty and Leader Development', *Air & Space Power Journal*, Winter, 2002.

Snider, D.M., Priest, R.F. and Lewis, F., 'The Civilian–Military Gap and Professional Military Education at the Precommissioning Level', *Armed Forces and Society*, Vol. 27, Issue 2, Winter, 2001.

Song, L., Singleton, E.S., Hill, J.R. and Koh, M.H., 'Improving Online Learning: Student Perceptions of Useful and Challenging Characteristics', *The Internet and Higher Education*, Vol. 7, Issue 1, 2004.

Stevenson, E.J., 'Educating the Community's "Cream": Common Military Training at the Australian Defence Force Academy', *Australian Defence Force Journal*, No. 120, September–October 1996.

Tan, B., 'The Learning Military Organization: Revisited', *Pointer*, Vol. 29, No. 3, July–September 2003, http://www.mindef.gov.sg/safti/pointer/back/journals/2003/Vol29_3/7.htm, viewed 21 September 2004.

Till, F., 'Internet 2 Nearly Here', *The National Business Review*, 3 June 2004, http://www.nbr.co.nz/home/column_article.asp?id=9217&cid=3&cname=Technology, viewed 10 August 2004.

Ward, J., 'Blended Learning: The Convergence of e-Learning and Meetings', *Franchising World*, Vol. 35, Issue 4, May–June 2003.

Reports and Papers

Australian Command and Staff College, *Evaluation and Validation of the ACSC*, discussion paper, 2000.

Australian Command and Staff College, *The Place of the Australian Command and Staff Course in Supporting the Continuum of Australian Defence Officer Education*, discussion paper, 2001.

Australian Command and Staff College, *ADC Internal Performance Assessment Reports*, major activity, 2002.

Australian Command and Staff College, *Where to in the Future*, November 2003.

Ayers Saint Gross, Architects, 'The History of University of Georgia', *University of Georgia Physical Master Plan*, Technical Memorandum, 1998, http://maps.uga.edu/ftp/masterplan/Sections, viewed 30 July 2004.

Bell, M., Bush, D., Nicholson, P., O'Brien, D. and Tran, T., *Universities Online – A Survey of Online Education Services in Australia*, Occasional Paper 02-A, [Australian] Department of Education, Science and Training (DEST), March 2002, http://www.dest.gov.au/highered/occpaper/02a/02_a.pdf, viewed 9 August 2004.

Belham, D.W., *Command and Staff College – The Basis for a Tri-Service Staff College*, Fort Queenscliff Papers, 1991.

Bennett, C. (ed.), *New Zealand Futures Assessment – Professional Development Implications*, New Zealand Defence Force, 2003.

Bodnar, B., 'Significance of Government Investment in Educational Technology Research and Development', in *International Review of R&D Priorities and Funding*, 2003, http://www.fas.org/learn/intl_rev/significance.htm, viewed 21 September 2004.

Bopping, D., *Secrecy and Service – Loyalty in the Australian Defence Force: Understanding the Social-Psychology of Problematic Non-Disclosure*, unpublished PhD manuscript, Australian National University, 2004.

Canadian Forces College, *Report of the DP3 Delivery Option-Study Group*, 2001.

Canadian Forces College, *Canadian Forces College Advanced Military Studies Course*, Course 5 Syllabus, Toronto, Ontario, May 2002, http://www.cfc.forces.gc.ca/DP4/AMSC/AMSC5/cfc403_e.pdf, viewed 3 August 2004.

Cavanagh, J. and Ó hÉigeartaigh, M., *E Learning in the Military College – How the Library and Educational Research Centre Can Play a Vital Supporting Role*, Working Paper NCIRL–002–2003, National College of Ireland, 2003.

Cook, M., *Curriculum Transformation Working Group, Report to the Commandant on Alternative Curriculum Model for AY 06, June 2004*, presentation given at the Australian Defence College, 30 July 2004.

Ditmar, J., *Australian Command & Staff College – Where to in the Future?*, Australian Defence Force internal paper, November 2003.

Dorff, R.H., 'Professional Military Security Education: The View from a Senior Service College', *Educating International Security Practitioners – Preparing to Face the Demands of the 21st Century International Security Environment*, Strategic Studies Institute, US Army War College, July 2001.

Durham, S.E., *Chaos Theory for the Practical Military Mind*, research paper, USAF Air Command and Staff College, 1997, http://www.au.af.mil/au/awc/awcgate/acsc/97-0229.pdf, viewed 14 July 2004.

English, A., Brown, A. and Johnston, P., 'Are We Losing Our Memory: Decision Making in DND', paper presented at the *Canadian Military History Conference*, Ottawa, ON, 5–9 May 2000.

Gropman, A.L., *Report to New Zealand Defence Force, Project APTUS*, New Zealand Defence Force internal report, 2003.

Harasim, L., 'A New Paradigm in Learning – The Virtual-U: Lessons Learned from the Largest Field Trials in Post-Secondary Online Education', keynote address, *Hong Kong Web Symposium*, 9 June 2000, http://www.hkwebsym.org.hk/2000/key_harasim.htm, viewed 5 August 2004.

Hunn, D. and Carruthers, C., *Review of Accountabilities and Structural Arrangements (RASA) between MoD and NZDF*, New Zealand State Services Commission, 2001. Appendices available at http://www.ssc.govt.nz/upload/downloadable_files/Defence_report_appendices.pdf.

Jans N., *The Real C-Cubed, Culture Careers & Climate – And How They Affect Capability*, Canberra Papers on Strategy and Defence, No. 143, 2002.

Jensen, E., *Introduction – The Accelerated Learning Brain-Based Approach*, unpublished course notes, 1996.

Mackie, R., *A Strategic Plan for Officer Education in the New Zealand Defence Force*, unpublished research paper, 2001.

Martino, A.C., *Naval War College Enlists University of Maryland University College to Provide Online Graduate Degrees for Officers*, University of Maryland University College press release, 13 December 2001, http://www.umuc.edu/events/press/news113.html.

McInnis, C., James, R. and Hartley, R., *Trends in the First Year Experience*, Department of Education, Training and Youth Affairs (DETYA), 2000, http://www.dest.gov.au/archive/highered/eippubs/eip00_6/fye.pdf, viewed 3 August 2004.

Moore, M.G. and Thompson, M.M., *The Effects of Distance Learning*, ACSDE Research Monograph No. 15, American Center for the Study of Distance Education, Pennsylvania State University, PA, 1997.

The Parliament of Commonwealth of Australia, *Officer Education – The Military After Next*, Joint Standing Committee on Foreign Affairs, Defence and Trade, Canberra. 1995.

The Parliament of Commonwealth of Australia, *Staff Colleges Collocation Project, Weston Creek, ACT*, Parliamentary Standing Committee on Public Works, Canberra, 25 November 1999.

Phipps, R. and Merisotis, J., *What's The Difference? A Review of Contemporary Research in the Effectiveness of Distance Learning in Higher Education*, Institute for Higher Education Policy, (ED 429 524), Washington DC, 1999, http://www.ihep.com/Pubs/PDF/Difference.pdf, viewed 10 August 2004.

Rumble, G., 'The Costs of Networked Learning: What have we learnt?' conference paper presented at *Flexible Learning on the Information Superhighway Flish 99 – The Business Case for Online Learning*, 1999, http://www.shu.ac.uk/flish/rumblep.htm, viewed 6 August 2004.

Sikes, C.S., Cherry, A.K., Durall, W.E., Hargrove, M.R. and Tingman, K.R., 'Brilliant Warrior: Information Technology Integration in Education and Training', research paper presented to *Air Force 2025*, August 1996.

Simons, M.V., *Identifying the True Military Factor in RNZAF Training*, unpublished thesis, Canterbury University, 1997.

Smith, L., *Overview of Flexible Delivery in the Defence Organisation*, research paper, Concepts and Principles of Flexible Delivery, University of Southern Queensland, Australia, 2001.

Smith, L., *Development of a Flexible Delivery Policy for Defence*, research paper, Concepts and Principles of Flexible Delivery, University of Southern Queensland, Australia, 2001.

Stevenson, E.J., *Educating the Community's 'Cream': An Examination of the Military Training at the Australian Defence Force Academy*, MA thesis, University of Canberra, 1995.

Taylor Nelson Sofres, *Government Online: An International Perspective – 2003 Global Summary*, 2003, http://www.tns-global.com/corporate/Doc/0/JF206RCSIND4H7QIOVKUGST011/21451_Global+Report_Final.ppt, viewed 2 August 2004.

The Bologna Declaration on the European Space for Higher Education – An Explanation, http://europa.eu.int/comm/education/policies/educ/bologna/bologna.pdf, viewed 4 August 2004.

'The National Commission on Terrorist Attacks Upon the United States', *GPO Access*, 2004, http://www.gpoaccess.gov/911/, viewed 10 August 2004.

Thomas, K., *Leadership Development – A Case Study of the Relative Effectiveness of Educational Processes*, Doctoral Research Paper, La Trobe University, Australia. 2002.

United Kingdom Ministry of Defence, *Modernising Defence Training – Report of the Defence Training Review*, 2001, http://www.mod.uk/issues/training/contents.htm, viewed 18 August 2004.

United States Army War College Curriculum Transformation Working Group, *Report to the Commandant on Alternative Curriculum Models*, Carlisle Barracks, PA, 2 June 2003.

United States Army War College Curriculum Transformation Working Group, *Report to the Commandant on a Curriculum Model for AY 06*, Carlisle Barracks, PA, 29 June 2004.

United States Department of Defense, *Professional Military Education at the Three Senior Service Schools*, Report to the Chairman, Panel on Military Education, Committee on Armed Services, House of Representatives, 1991.

United States Government Accountability Office, *Military Education – DOD Needs to Develop Performance Goals and Metrics for Advanced Distributed Learning in Professional Military Education*, Report to the Ranking Minority Member, Committee on Armed Services, House of Representatives, 2004, http://www.gao.gov/new.items/d04873.pdf, viewed 20 August 2004.

University of Illinois, *Teaching at an Internet Distance – The Pedagogy of Online Teaching and Learning*, 1999, http://www.vpaa.uillinois.edu/tid/report/, viewed 2 August 2004.

Williamson, A., Gunn, C., Young, A., and Clear A., *Winds of Change in the Sea of Learning,* Vol. 2, UNITEC Institute of Technology, Auckland, (19th Annual Conference of the Australasian Society for Computers in Learning Tertiary Education), 2002.

Varoglu A.K. and Ercil, Y., *Virtual Classrooms*, Turkish Delegation of the NATO Training Group Working Group on Individual Training and Education Developments, 2000, http://www.kho.edu.tr/english/institute/nato/public_html/sp17.doc, viewed 3 August 2004.

Wardell, C.S., *Distance Education – A Study of A Military Program*, PhD Dissertation, University of Louisville, USA, 1997.

Zimmer, I. and McKern, B., *A Review into Military Postgraduate Education*, [Australian] Ministerial Review, 2000.

Government Documents

Australian Air Publication 1000, *Fundamentals of Australian Aerospace Power*, Fourth Edition, Royal Australian Air Force Aerospace Centre, Canberra, 2002.

Australian Command and Staff College, *Budget*, Financial Year 2003/04, 2003.

Australian Command and Staff College, *Charter*, 2003.

Australian Command and Staff College, *Handbook*, 2003.

Australian Command and Staff College, Training Evaluation Reports (various), 2003.

Australian Defence Doctrine Publication D.3.1., *Enabling Future Warfighting – Network Centric Warfare*, Department of Defence, 2004.

Australian Department of Defence, *An Operational Strategy: Strategic Level Concept of Current ADF Operations 'Context, Metrics and Scale'*, Draft [ADF] COSC Agendum, November 2003.

Australian Department of Defence, 'Provision of Facility is for the Collocation of the Services' Staff Colleges, Weston Creek, ACT', *Statement of Evidence and Supporting Plans for the Presentation to the Parliamentary Standing Committee on Public Works*, 1999.

Australian Department of Defence, *Personnel Costs and Related Overheads*, September 2002.

Australian Department of Defence, *Australian Defence College Business Plan, 2003/04*, 2003.

New Zealand Defence Force, *Royal New Zealand Air Force List*, July 1974.

New Zealand Defence Force, *Royal New Zealand Air Force List*, July 1980.

New Zealand Defence Force, *Royal New Zealand Air Force List*, January 1985.

New Zealand Defence Force, *Royal New Zealand Air Force List*, January 1994.

New Zealand Defence Force, *Royal New Zealand Navy List*, October 2003.

New Zealand Defence Doctrine Publication (NZDDP–D), *Foundations of New Zealand Military Doctrine*, New Zealand Defence Force, 2004.

New Zealand Defence Force, *New Zealand Army List*, January 2004.

New Zealand Defence Force, *Royal New Zealand Air Force List*, January 2004.

New Zealand Department of Labour, *Connecting Communities Strategy*, http://www.govt.nz/urn.php?id=1%7C439%7C443%7C5635, viewed 9 August 2004.

New Zealand Ministry of Education, *Statement of Tertiary Education Priorities 2003/04*, 2003, http://www.tec.govt.nz/downloads/ a2z_publications/step-03-04.pdf, viewed 9 August 2004.

New Zealand Ministry of Education, *Interim Tertiary e-Learning Framework*, March 2004, http://www.tec.govt.nz/downloads/a2z_publications/step-03-04.pdf, viewed 9 August 2004.

New Zealand Ministry of Education, *Digital Strategy for the National Library of New Zealand*, http://www.natlib.govt.nz/en/digital/1digitalstrategy.html, viewed 9 August 2004.

New Zealand Ministry of Education, *Project Probe*, http://www.minedu.govt.nz/index.cfm?layout=document&documentid=7328&data=l, viewed 9 August 2004.

New Zealand State Services Commission, *e-Government Strategy*, http://www.e-government.govt.nz/programme/strategy.asp, viewed 9 August 2004.

United Kingdom Ministry of Defence, *Strategic Defence Review*, 1998, http://www.mod.uk/issues/sdr/, viewed 10 August 2004.

United States Chairman of the Joint Chiefs of Staff Instruction, *Officer Professional Military Education Policy*, 1 December 2000.

United States Joint Forces Command, *Doctrinal Implications of Operational Net Assessment (ONA)*, Joint Doctrine Series, Pamphlet 4, The Joint Warfighting Center, 24 February 2004.

Vilaphan, C., *National Defense Studies Institute, Joint Staff College*, The Joint and Combined Staff Officer Course, The Royal Thai Survey Department.

Web sites

(all web sites were active at time of writing)

Advanced Distributed Learning (ADL)
http://www.adlnet.org

African Virtual University
http://www.avu.org

Aviation Industry CBT Committee (AICC)
http://www.aicc.org

Australia and New Zealand School of Government (ANZSOG)
http://www.anzsog.edu.au

Asia Pacific Area Network (APAN)
http://www.apan-info.net/country_sites/default.asp

Australian National University
http://www.anu.edu.au

Campus One (Ulster, UK)
http://campusone.ulster.ac.uk/index.cgi

Charles Sturt University
http://hsc.csu.edu.au/pro_dev/teaching_online/how_we_learn/constructivism.html

Darwars
http://www.darpa.mil/dso/thrust/biosci/training_super.htm

Distance Educator
http://www.distance-educator.com

e-College
http://www.e-College.com

e-Learning links
http://glory.gc.maricopa.edu/~mdinchak/OnlineLearning/references.htm

eSocrates
http://www.esocrates.com

Facts on International Relations and Security Trends (FIRST)
http://first.sipri.org

Global Campus
http://www.csulb.edu/~gcampus/

Harvard University (NGI)
http://www.uis.harvard.edu/emerging_technologies/Internet2.php

Harvard University
http://www.harvard.edu

Impact Associates
http://www.impacta.com

Index of I2 universities
http://members.Internet2.edu/university/universities.cfm

Institute for Higher Education Policy
http://www.ihep.com/Home.php

Interactive University
http://www.interactiveuniversity.net/about/pyramid.htm

International Relations and Security Network
http://www.isn.ethz.ch/index.cfm

Internet2
http://www.Internet2.edu

Internet2 (Harvard)
http://www.uis.harvard.edu/emerging_technologies/Internet2.php

Macquarie University Middle East Course
http://www.mq.edu.au/mec/sim/

Massey University (NZ)
http://www.massey.ac.nz

Militaries of the World
http://wps.cfc.dnd.ca/links/milorg/index.html

Multinational Planning Augmentation Team (MPAT)
http://www2.apan-info.net/mpat/

NZQA National Framework
http://www.nzqa.govt.nz/framework/index.html

NZ e-Learning portal
http://www.elearn.govt.nz

NZ Ministry of Education (Tertiary)
http://www.ted.govt.nz

OntarioLearn
http://www.ontariolearn.com/

Open Learning Australia (OLA)
http://www.ola.edu.au/cgi-bin/hive/hive.cgi

Oxford University
http://www.ox.ac.uk

Partnership for Peace
http://www.pfpconsortium.org

PBS Campus
http://www.pbs.org/campus/

PLA Daily
http://english.pladaily.com.cn/special/lanmu/4academy/index.htm

Queensland University of Technology
http://www.qut.com/services/techsupp/olteach/

RAND
http://www.rand.org

School of Advanced International Studies, John Hopkins University
http://www.sais-jhu.edu

SCORM 1.2
http://www.adlnet.org/index.cfm?fuseaction=scorm12

SimuLearn
http://www.simulearn.net/SimuLearn/standalone.htm

Stanford University
http://www.slac.stanford.edu/grp/scs/net/talk/sluo-may97/tsld009.htm

Stockholm International Peace Research Institute
http://www.sipri.org/

Strategic Forecasting (Stratfor)
http://www.stratfor.com

Thinq Learning Solutions
http://www.thinq.com

UK Higher Education Funding Council
http://www.ukeu.com

Universitas21
http://u21global.com/cgi-bin/corp.dll/portal/ep/home.do

University of Auckland
http://www.auckland.ac.nz

University of Manitoba (Canada)
http://www.umanitoba.ca/centres/defence/

Victoria University (ANZSOG)
http://www.sog.vuw.ac.nz/vuw/content/school.cfm?school=sog

Related Journals

American Journal of Distance Education
http://www.ed.psu/acsde/ajde/jour.asp

Chronicle of Higher Education
http://chronicle.merit.edu/free/resources

Distance Educator
http://www.distance-educator.com/index.php

Education Technology and Society
http://ifets.ieee.org/periodical/

Information, Communication and Society
http://www.infosoc.co.uk

International Review of Open and Distance Learning Research
http://www.irrodl.org

Journal of Asynchronous Learning Networks
http://www.aln.org/alnweb/journal/jaln.htm

Journal of Computer Assisted Learning
http://www.blackwell-science.com

Journal of Computer Mediated Education
http://www.ascusc.org/jcmc

Journal of Educational Computing Research *(subscription)*

Journal of Educational Multimedia and Hypermedia *(subscription)*

Journal of Educational Research *(subscription)*

Journal of Interactive Learning Research
http://www.aace.org/pubs/jilr/default.htm

Journal of Interactive Media in Education
http://www.jime.open.ac.uk

Journal of Science Education and Technology
http://www.gse.harvard.edu/~etc/jset

New Media and Society
http://www.new-media-and-society.com

Oxford Internet Institute
http://www.oii.ox.ac.uk

The e-Learning Guild
http://www.elearningguild.com

The Information Society
http://www.slis.indiana.edu/TIS

Existing PML Portals

(sample only)

American Military University
http://www.apus.edu/AMU/home/AMU/

Asia Pacific Area Network APAN
http://www.apan-info.net/country_sites/default.asp

eArmyU
http://www.earmyu.com

Geneva Centre for Security Policy
http://www.gcsp.ch/e/index.htm

International Relations Security Network
http://www.isn.ethz.ch/index.cfm

National Defense University
http://www.ndu.edu

Partnership for Peace
http://www.pfpconsortium.org

UNITAR POCI (Peackeeping)
http://www.unitarpoci.org

US Army Command and General Staff College
http://www-cgsc.army.mil/NRS/index.asp

PME Institute Websites Surveyed

Asia–Pacific Center for Security Studies
http://www.apcss.org

Australian Centre for Defence and Strategic Studies
http://www.defence.gov.au/adc/cdss/

Australian Command and Staff College
http://www.defence.gov.au/acsc/

Australian Defence Force Academy
http://www.defence.gov.au/adfa/

Austria – National Defense Academy
http://www.bmlv.gv.at/organisation/beitraege/lvak

Baltic Defence College
http://www.bdcol.ee/bdcol/

Bolivia – School of High National Studies
http://www.umss.edu.bo/Enlaces/Ecem/

Bulgaria – G. S. Rakovski Defence and Staff College
http://www.mil.se/pfp/viking01/locbu2.html

Canada – Canadian Forces College
http://www.cfc.forces.gc.ca

Canada – Centre for Military & Strategic Studies
http://www.weblearn.ca

Canada – Royal Military College
http://www.rmc.ca

Czech Republic – Military Academy
http://www.vabo.cz

Denmark – Forsvarsakademiet
http://www.fak.dk

Finland – National Defense College of Finland
http://www.mpkk.fi

France – Collège Interarmées de Défense
http://www.college.interarmees.defense.gouv.fr

Germany – Command and Staff Academy
http://www.fueakbw.de

Hungary
http://www.zmka.hu/index_e.php

India – National Defence College
http://ndc.nic.in

Inter-American
http://www.jid.org/en/college/

Ireland – Military College
http://kildare.ie/defenceforces/ORG/mil.htm

Italy – Centre for Higher Defence Studies
http://www.casd.difesa.it

Japan – National Defense University
http://www.nda.ac.jp

Geneva Centre for Security Policy
http://www.gcsp.ch/e/index.htm

NATO Defense College
http://www.ndc.nato.int/about/about.html

The Netherlands – Royal Defence College
http://www.mil.be/rdc/index.asp?LAN=E

New Zealand Defence Force CSC
http://www.nzdf.mil.nz/csc/index.html

Norway – Defence Staff College
http://www.mil.no/felles/fsts/

Norway – National Defence College
http://www.mil.no/felles/fsts/start/

Pakistan – Command and Staff College
http://www.cscquetta.com

Philippines – National Defense College
http://www.ndcp.edu.ph

Poland – Academy of National Defence
http://www.aon.edu.pl

Portugal – Institute of National Defence
http://www.idn.pt/instituicao.asp

Romania – Land Forces Military Academy
http://www.actrus.ro

Singapore – SAFTI
http://www.mindef.gov.sg/safti/

Singapore – IDSS
http://www.ntu.edu.sg/idss/abtus_01.htm

Slovakia – Military Academy in Liptovský Mikuláš
http://www.valm.sk

Slovenia
http://www.mors.si

South Africa – Institute for Security Studies
http://www.iss.co.za

South Africa – Military Academy
http://www.sun.ac.za/mil/

Sweden – National Defence College
http://www.fhs.mil.se

Switzerland
http://www.hka.vbs.admin.ch/Internet/hka/de/home/generalstabsschule.html

Thailand Institute of Advanced Military Studies
http://iams.rta.mi.th/index2.htm

Turkish Military Academy Defense Science Institution
http://www.kho.edu.tr

UK – JSCSC
http://www.da.mod.uk/JSCSC

UK – Defence Academy
http://www.da.mod.uk/DefenceAcademy

UK – RCDS
http://www.da.mod.uk/RCDS/Home/

UN System Staff College
http://www.unssc.org/web1/

UN University
http://www.unu.edu

UN – UNITAR POCI (Peacekeeping)
http://www.unitarpoci.org

UN – University for Peace
http://www.upeace.org

US – Air Command and Staff College ACSC
http://wwwacsc.au.af.mil

US – Air War College (AWC)
http://www.au.af.mil/au/awc/awchome.htm

US – Army War College (USAWC)
http://carlisle-www.army.mil

US – Marine Corps War College (MCWAR)
http://www.mcu.usmc.mil/MCWAR/

US – National Defense University
http://www.ndu.edu

US – American Military University
http://www.apus.edu/AMU/home/AMU/

US – Army Command and General Staff College
http://www-cgsc.army.mil

US – eArmyU
http://www.earmyu.com

US – Naval War College (NWC)
http://www.nwc.navy.mil/defaultf.htm

US – Naval Command and Staff College (NCSC)
http://www.nwc.navy.mil/defaultf.htm

US – Industrial College of the Armed Forces
http://www.ndu.edu/icaf/

US – Joint Forces Staff College
http://www.jfsc.ndu.edu

US – Marine Corps Command and Staff College
http://www.mcu.usmc.mil/csc/

US – Air Force Academy
http://www.usafa.af.mil

US – Military Academy
http://www.usma.edu

US – Coast Guard Academy
http://www.cga.edu