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SEMINAR PAPER

PREPARING MILITARY LEADERSHIP FOR WARFARE IN THE

21ST CENTURY

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ABSTRACT

This paper discusses the impact of the Information Age on operational level military leaders and attempts to identify critical profiles necessary for them to lead and be successful in this new strategic environment. It covers issues such as the impact of modern technology on information management, the effects of the media and the changing demographic profile of a new generation of "console warriors." Key profiles such as the need to adopt a transformational style of leadership, good technical knowledge, a learning culture and the ability to think critically are articulated in this paper. The paper concludes by providing recommendations for military organisations to better prepare their leaders to lead in this new landscape. It argues that military organisations must provide the environment and the commitment to harness professional military education as a force multiplier and that this must be seen as a career-long process.

INTRODUCTION

Since the beginning of the 20th century, technology has influenced the nature of warfare significantly. From machine guns, tanks, submarines and tactical aircraft that were used in the battlefields of World War I, technology has progressively brought forth nuclear weapons, stealth bombers, inter-continental missiles, precision-guided munitions, robotics and integrated communications satellite computer systems that have profoundly affected the way nations prepare their defence. Technology is often seen as a panacea in national defence, capable of providing a comparative advantage in maintaining national security, prestige and influence. Most major powers strive to equip their military forces with the best available technology to give them decisive advantages over their potential adversaries.

While technology is an energising force that serves as a force multiplier, it is perhaps important to remember that such technologies do not necessarily change the order or outcome of battles overnight. In fact new tools often require new thinking, new psychologies of leadership which can translate into new processes, new performance standards - new ecologies of learning. These will have to be built over time, just like the evolution of military hardware. In other words, if the aim is to synergise the full potential of man and machine in combat, then grooming and grounding of military leadership must commensurate with the advancement in technology.

This paper will review the changing landscape brought about by new technology and will study its impact on military leadership in the 21st century. The

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paper will also attempt to identify critical profiles required of military leaders operating under this new landscape. It will conclude with recommendations on how military organisations can better prepare their leaders to handle warfare at the operational level in the 21st century.

THE CHANGING LANDSCAPE

Information and technology will dominate the first decade of the 21st century as they have dominated the last decade of the 20th century. We are in an Information Age that is knowledge driven and requires integration of various systems that in turn are supported by a large information infrastructure. Knowledge is the basis by which new and more effective modes of production are developed. Therefore the ability to acquire, generate, distribute and apply knowledge becomes an immense value in the Information Age.

For the military, this has been translated into accelerated pace of operations and transactions that are facilitated primarily by advances in information technology. Technology is not only being used to address problems but also being reviewed as an approach to enhancing the entire mission of the organisation. The Information Age has created a Revolution in Military Affairs (RMA) with possible options for military forces that were never before imaginable. Alvin and Heidi Toffler propounded that strategic revolutions occur when a much broader shift in the method of production changes the entire panoply of human relationships, thus altering not only how militaries fight, but also who fights and why they fight.[1] Steven Kenny highlighted that we are now faced with an

environment of tremendous ambiguity and uncertainty given that technology is advancing at a dizzying pace with identity of future competitors being unclear.[2]

The architects of 21st century militaries must understand the broad political, economic, social, and ethical changes brought by the information revolution and by its manifestations. They must understand the effect these changes are having or might have on the evolution of armed conflict and then develop some notion of what characteristics and profile the future military leadership must have to survive and prosper in the new strategic environment. The better an individual or an organisation understands the nature of the revolution, the better are its chances of emerging a winner.[3] By examining the ongoing changes in the environment and thinking expansively, looking for wider implications and relationships followed by a review of training and professional military education (PME) and of military leadership, the architects of future militaries can and will increase the chances of ultimate success.

EFFECTS OF THE CHANGING LANDSCAPE

The Information Age has brought us quick and easy access via computerised databases to an array of information that hitherto would take years to locate and research. Current technology also permits the delivery of this information on demand through personal computers and workstations. These tools will significantly reduce the memory and retention requirements of the individual, positively impacting on the overall time taken to learn and discover new knowledge. There will be a reduction in cognitive load and this will permit

personnel to be trained to perform multiple tasking that may result in a redistribution of responsibilities and reduction in manpower, a scare resource in any modern military. On the flip side, such a method of managing and manipulating information is affecting or replacing individual efforts in knowledge acquisition and inference. The exponential growth of information and the methods for acquiring and filtering voluminous data would present an abundance of hazards for the uncritical thinker who uses technology to make his decisions.[4] The arrival of the Information Age has also brought about the following changes:

Improvement in Situational Awareness. Technology enables armed forces to collect, collate, display and determine the adversity of contacts with a speed that is faster than a human being could manage. Communications technology has improved the immediacy, quality and quantity in situational awareness making it possible for the highest echelon in the chain of command to have direct connectivity to the lowest level unit on the ground. However, there is a downside to this improvement in situational awareness through improved communication connectivity. The first and most obvious implication is that senior leadership might be tempted to micromanage the operations given that they would have available to them tactical pictures of subordinate units. Although the temptations to use direct influence on lower echelons will be great, the impulse must be resisted. Tomorrow's leaders must recognise that they are constrained by the same human limits that dictate an efficient span of control today. The senior leader's role is to look at the macro picture at the operational level and allow his subordinate leaders to address the tactical details. On the other hand,

subordinates who are now provided with the "larger picture" that the new data transfer capabilities allow, are "likely to second-guess decisions made at a higher level and…. have the information required to undertake initiatives their superiors may find inappropriate."[5]

Information Overload. In the past, a leader's main problem was the accurate and timely receipt of information. Quality information is the key to good decision-making. With the advent of the Internet and commercial satellites, the leader is now presented with unprecedented information and in mind-numbing details. Unfortunately, there is a finite limit to the amount of information that the brain can usefully process. The human brain, faced with more data than it can process, will automatically filter out what it considers unimportant. Only a small subset of data received will be processed as information, thereby impacting the decision making process.[6] The challenge for the leader is to make the natural filtering process a conscious effort rather than an unconscious reaction. Leaders need to make hard choices in advance about what kind of information they need and reject the trivia that now floods into modern operational centres. Knowing what and when to filter is an important leadership skill that requires training focus.

Proliferation of Information Warfare. Increasing reliance on data automation and digitisation creates serious vulnerabilities. No military can truly maintain "information superiority"[7] and undisputed IT pre-eminence because the commercial sector produces new generations of equipment faster than the military acquisition system can purchase or develop it. In addition, information

about current operations can be obtained from other sources for a modest investment.[8] Information systems and processes will become targets and another dimension in modern warfare for our adversaries.[9] Technology has indeed opened a new dimension in warfare and officers must now be equipped and trained to be information warriors. Unless engineers can design systems that provides multiple layers of "firewalls" that are almost impossible to hack, and also redundancies both in processes and power supplies, the leadership challenge here is not to become so dependent on technology that we cannot react when that system is disrupted. A successful leader will have to adapt to any situation, and it is virtually guaranteed that a credible adversary will attack the technology that is relied upon most. An option to overcome reliance on technology is to develop doctrine and strategies for conducting military operations in an environment of information transparency or information parity.[10] However, this would defeat the purpose of investing heavily in maintaining a technological edge over your adversary.

"CNN-isation" of War-fighting. The Gulf War in 1991 has proven that the media can project powerful images that can build or erode public support for a military operation.[11] "Vertically Integrated" news organisations with their surveillance satellites and self-contained communication systems will allow them to function autonomously. Information technologies will empower these organisations to such a degree that virtually no significant observable detail will escape their view.[12] The media is now an important player in world and regional politics. The leaders of today will have little room for mistakes as the media will

capitalise on them and propagate their views. The media are fusing into an interactive, self-referencing system in which military consultants and academia share expert views, ideas, opinion and information, and images flow continuously from one channel to another. The approach and process of running operations or solving the problems (as portrayed by the media) becomes an important input to the strategic and operational leaders. Military leaders cannot ignore the media as it can create public pressure on the political masters to either terminate hostilities or review their concept of operations.

In a similar vein, tomorrow's communication capabilities may allow the families of soldiers to establish a "virtual presence" with them on the battlefield.[13] The proliferation of personal cell phones, e-mail on the Internet and other personal communication devices is posing difficulties for most militaries in curbing their usage. While military discipline and operational security in restricting their use in war may provide the answer, similar restrictions in peacetime and operations other than war would definitely face resistance and even non-compliance. Military leaders will not only be affected by the media, but will have to contend with queries from overly anxious family members and also maintaining military discipline and secrecy.

New Generation of "Console Warriors". The cohorts of young officers and soldiers joining the military are educated in the digital age and a high percentage possesses mastery in basic computer literacy. Graduating from high schools, junior colleges and polytechnics that have progressively incorporated IT in their curriculum also means that they bring with them higher expectations and

perceptions of their career in the military. Coming from such a pervasive IT environment and given that these junior officers and soldiers may be empowered with unprecedented access to all kinds of information; the effect of the absence of clear rules concerning information operations could result in drastic implication for the superior.[14] Moreover, the officer corps could be mesmerised by high technology such that it produces a generation of leaders that is so insecure without their computer models and decision systems that they could not step beyond them.[15] The challenge is to ensure that they are fully prepared, both technically and psychologically, to handle greater legal and moral responsibilities that the enhanced capabilities impose upon them. Unquestionably, maintaining discipline and professionalism under the new combat conditions is more essential than ever and even more difficult to guarantee.[16]

PROFILE OF MILITARY LEADER IN 21ST CENTURY

Peter Northouse defined leadership as a process whereby an individual influences a group of individuals to achieve a common goal.[17] Defining it as a process and not as a trait that resides in the leader implies that it is transformational and that a leader affects and is affected by his followers. The process viewpoint also suggests that leadership is a phenomenon that resides in the context and that it is something that can be learned.[18] As we move into the 21st century, military leaders must be imbued with certain capabilities and qualities to enable them to be effective leaders. They must be proficient in many fields so that they can direct military actions that will achieve desired political

ends and must have the intellectual foundation for the transformation of the military, made necessary by the ever-changing nature of threats to national security.[19] Military leaders in the Information age must therefore possess and develop the following essential competencies to make them effective leaders in the 21st century.

Transformational versus Transactional Leadership. Transformational leaders have been identified in both military and commercial settings as more effective than are leaders who rely heavily on transactional or management-by-exception leadership style.[20] Transformational leaders set out to empower followers and nurture them in change. They attempt to raise the consciousness in individuals and to get them to transcend their own self-interests for the sake of others.[21] This is most applicable for leaders at the operational level given that they are interacting with planning groups, teams and subordinate unit commanders who normally possess substantial experience and are equally motivated to get the job done. Even at the tactical level, transformational leadership is more appealing to the younger generations of officers and NCOs as it places stronger emphasis on their needs, values and morals. Transformational behaviours such as articulating a motivational vision for the organisation, providing intellectual challenge to subordinates, inspiring teamwork and promoting ideas are not a clearly defined set of assumptions about how leaders should act but rather they provide a way of thinking about leadership that emphasises ideals, inspiration, innovations and individual concerns.[22] Since

transformational leadership is more a process than a trait, Bass and Avolio suggest that it can be taught to individuals at all levels within an organisation.[23]

In-depth Knowledge of Technology. Technology's increasing complexity requires ever-greater levels of technical sophistication in the personnel who operate the technology. PME will have to be reviewed and revised to keep in tandem with RMA. Consideration of PME in the context of a RMA is important because of the impact this education can have on the officer, both in terms of factual knowledge and, perhaps more importantly, in ways of thinking or looking at the world.[24] Military leaders must be technology-literate to fully grasp the impact of RMA, its current and future trends, and the impact of RMA on the development of future warfare and military operations. As technology is evolving at a phenomenal rate, the military leaders of the 21st century must be able to shape and revise doctrine, operational concepts, tactics and training as fast as the new technologies evolve. The challenge is to determine how much of the RMA perspective the future war planner or battlefield commander need to master. The future is characterised by an unprecedented interdependence of information and erosion of "walls" between areas of knowledge and we will have to look to PME to develop leaders who can bring to bear their education in a diversity of areas that may now seem outside what has traditionally been considered military affairs.[25]

Cognitive Critical Thinking Skill. While technological skills will enhance access to information for decision-making, cognitive skills are required to analyse and integrate the information so that it becomes relevant knowledge. A report on

PME convened by the Chairman of the Joint Chiefs of Staff (US) in 1995, stated, "Now more than ever, the officer corps must be able to think creatively, reason critically, and act decisively in the face of ambiguity and uncertainty."[26] Another study by the Institute for Management and Leadership Research of Texas Tech University listed the essential competencies for 21st century leaders to include ability to deal with cognitive complexity, tolerance of ambiguity, intellectual flexibility and a meaningful level of self-awareness.[27] In essence, to be successful in navigating the revolutions of the future, military leaders will need greater mental agility than ever before, a creative and visionary approach to problem solving and consequently speed in critical thinking.

Communication Skills. In the Information Age, where increasing complexity is managed through specialised knowledge and functions, communication skills will become important for the team to act as one. The technological availability of instant information being made available to all echelons in the chain of command necessitates that more open communications be made without jeopardising coordination or introducing conflicts in messages and threats to authority and responsibility.[28] Military leaders must be able to create a passionate commitment in others to pursue their well-thought strategy in order to achieve success. Sending the right signal and maintaining consistency in the messages is even more critical for leaders at the operational level.[29] This is even more important when operating in a multi-national environment where languages and cultures differ. The need to have clarity and yet maintain diplomacy in the process is indeed a challenge to any military leader. At times

military leaders may also be called upon to face the media. The public will be heavily influenced by how military operations will be portrayed in the media. Military leaders need to understand the impact of the media on their operations and should master effective communication skills to send the right messages, instil confidence to the public and hopefully win them over.

Need to Adopt a Learning Culture. Given the pace with which change is expected to occur in the 21st century, perhaps the single most important skill that the military leaders should have is openness and the ability to learn and to relearn. Through a willingness to learn, military leaders can develop the capacity to deal with change and even to embrace it. The concept of a learning organisation was popularised by Peter Senge who described a learning organisation as "*an organisation skilled at creating, acquiring, and transferring knowledge, and at modifying its behaviour to reflect new knowledge and insights.*"[30] In learning organisations, we are witnessing a paradigm shift in emphasis from training to learning. Training usually signifies a one-way transfer of established wisdom or skill from the expert instructor while learning, by contrast, is a much larger umbrella that covers all efforts to absorb, understand, and respond to the world around us. Learning has a social dimension and it involves not only absorbing existing information, but also creating new solutions to problems that are not fully understood. Training is a tool for learning, and learning and performance are the desired outcomes of training.[31]

Many military organisations are embracing the concept of a learning organisation and are advocating that their leaders be committed to lifelong

learning through a balance of educational and operational experiences, complemented by self-development, to fill knowledge gaps that PME and operational experiences do not provide. Equally important in this whole concept of PME is not "what to learn," but "how to learn."[32]

CHALLENGES AHEAD

Given the changing landscape and the high expectations required of military leaders, the challenges ahead for PME are daunting. Militaries must harness PME as a force multiplier. As the environment changes, the fundamental purposes of military organisations and the military itself may change. The crucial role of PME is to help future leaders understand how the world is changing and to enable them to determine how the military must change to fit this new world.[33] The key challenge is also to restructure the PME environment to concentrate on identifying how job skill requirements have and will continue to change in line with RMA. From the analysis of the impact of RMA and its likely influence on PME for the future, several key concepts are proposed. Although these concepts, as described next, are not revolutionary, they could serve as a comprehensive and logical foundation for the charting of PME in the 21st century.

Advocate Continuous Learning in the Military. Continuous learning refers to a training philosophy where every task performance is treated as a learning opportunity. It is a key notion that assumes that no one can stand still and rest on previous training or learning, no matter how comprehensive or effective it was.[34] Continuous learning must be based on a culture that

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encourages continuous self-improvement. Besides providing the right incentives, such as faster career progression or remuneration, any self-learning process must begin with meta-cognition – the self-awareness of an individual for the extent and limits of his knowledge.[35] In this context, self-awareness is the ability to assess abilities, determine strengths and weaknesses in an operational environment, and learn how to sustain strengths and correct weaknesses. Only then can he or she proceed to seek improvement. As such it is important that this self-awareness is fostered in PME.

To create and sustain the culture of continuous learning, military leaders must be educated on how to access and use resources, electronic or otherwise. Though it has been the case since the days of the first printed text that knowledge was available for those who sought it out, knowledge has never before been as easily available as it is today. The only difficulty is that there is usually more of it than can be readily processed by the average human being. The challenge, therefore, is to provide the tools to military leaders for them to access, sort, synthesise, evaluate and apply this information. One avenue of increasing educational productivity in PME is through the extensive use of advanced educational technology and new pedagogical approaches. The provision of distance learning techniques, multimedia instructional programs, artificial intelligence and "expert systems," virtual reality, and a host of other hyper learning tools should be exploited in PME to encourage continuous learning.[36] Of these, distance learning offers numerous benefits as it allows for both officers and training institutions to pursue continuous learning without major

disruption to their primary jobs. However, the purpose of PME is not simply to transmit a great deal of information to the officer but to also provide the opportunity to inculcate analytical skills, critical thinking, ethos and wisdom; most of which would be better delivered using affective and collaborative learning tools.[37]

In essence, PME must develop the officer not just to learn a specific skill but must also develop in them the skill of learning. The skill being transferred to the officer must not primarily be the transference of knowledge but also acquiring the ability to learn continuously.

Competency-Based PME. Many commercial organisations and government task forces throughout the world have embraced the concept of competency-based human resource development.[38] Traditionally, most militaries relate competency as outputs: officers display competencies to the degree to which their work meets or exceeds prescribed work standards. Courses have been developed based on a systems approach to training where standards have been the basis for developing training, assessing performance and providing feedback. However, there is a recent shift to focus on competencies seen mainly as inputs: the clusters of knowledge, attitudes, and skills that impact a person's ability to perform.[39] With the emphasis on military leaders having the need to develop cognitive skills and creativity to adapt to the changing landscape, development of PME to also handle these aspects of leaders' competencies is logical. Curriculum changes to provide focus on "soft or thinking skills" should be implemented but without distracting from mastery of essential technical skills. As

these skills vary from one individual to another, a more individualised and competence-based mode of education should be tailored to individual officers. The duration of the course would depend on the assessment of the officer's needs, experiences, and expectations.[40] While it may seem too audacious a system to implement, the importance of success in any operations that the military is called upon to participate would warrant such investments in the PME of military leaders.

Optimal and Just in Time (JIT) PME. Adults tend to lose some of the rapid knowledge retention capabilities, which they were blessed with in childhood.[41] Hence, to increase the probability of retaining learned information in memory, it must be presented in a useful manner, in stages, with the opportunity to apply and practice the skills learned so that they gain meaning and facilitate the building of mental models.[42] Being able to apply knowledge and skills immediately after a course to a job situation also makes the experience more interesting and motivating to the learner, thus enhancing memory and retention of knowledge. Delivering the right amount of education and training at the right time to meet the performance requirements of each individual is therefore an important criterion in the design of PME for military leaders. This is critical as it addresses the notion of retention of information and hence contributes to the ability to apply knowledge, perform a skill, solve a problem, or make a decision.

In line with JIT training, the right level that should be provided for each task or competency should also be considered. Educating and training an individual on all tasks and competencies required as a military leader in a single

course might overwhelm his cognitive capacity. In cases where this is predicted, only the critical tasks of the job, and those tools that enable one to gain information regarding the substance and performance of the non-critical tasks, should be extensively trained. Non-critical tasks' information not retained can then be retrieved on-demand.[43]

PME as a Total Force Responsibility. The complexity of PME in the modern age makes it all the more true that PME must be viewed as a career-long process, a cradle-to-grave system integrated with training.[44] No longer can we anticipate that the individual's education and training would provide him with the skills to perform the job for a significant period of time without continuous opportunity to apply and practice the skills already learned. A single stint at a particular PME institution may not be adequate preparation for a rapidly changing global politico-military environment. To encourage an environment of continuous learning, every military leader must take responsibility for their subordinates and themselves for career long PME. It is vital that individuals maintain awareness of their own capability to perform the job, and that they be continuously encouraged to take the initiative to improve their capabilities at every opportunity. At the organisational level, the responsibility for PME and training should not be seen as solely that of the PME institution. In order to inculcate a culture for continuous learning, military leaders must see the performance of each task as a learning opportunity, where feedback is given, performance deficiencies diagnosed and remedial actions taken. In other words, military leaders should also view PME as their primary responsibility at all times.

Implementing a Learning Organisation. Continuous improvement programs are rampant in most military organisations as they strive to better themselves and gain an edge. Unfortunately, failed programs far outnumber successes mainly because many failed to grasp the basic truth and that is, continuous improvement requires a commitment to learning.[45] As espoused earlier, a learning organisation aims to promote creativity and modify behaviours, but what policies and programs must be in place, and how does a military organisation, with its rigid hierarchical structure and regimentation, gets to transform into a learning organisation? David Garvin propounded the need to address the "three Ms" if an organisation is to be successful in embracing a learning organisation.[46] First is the question of **meaning**. The organisation needs a plausible, well-grounded definition of a learning organisation and it must be actionable and easy to apply. Being a learning organisation seems to be the buzzword these days, but what does it really mean to the soldiers and the officers in the organisation. Do they share the same idea and motivation towards achieving organisational objectives? Second is the question of **management**. Are clear guidelines provided for practice and are these filled with operational advice rather than rhetoric and high aspirations? How are these translated into day-to-day activities, training and PME? Finally, the third is a question of **measurement**. Are there tools adopted for measuring and assessing an organisation's rate and level of learning to ensure that gains have in fact been made?

Implementing a learning environment in the military is not just about making a policy statement. The environment must be conducive for learning. There must be time for reflection and analysis. Learning will not take place when personnel are harried and rushed to get things done, a common phenomenon in the military. Breaking down barriers and opening up boundaries to stimulate the exchange of ideas are also key ingredients for a successful learning organisation. Of course, this again runs counter to the rigid hierarchy and chain of command concept common in the military. Implementing a learning organisation in the military has its challenges but it is indeed a right step forward.

CONCLUSION

The RMA has clearly changed the fundamental nature of warfare in ways that we do not yet fully understand. However, we do know from centuries of recorded military history that the key to survival in times of turbulent change is military leadership. Successful leaders will adapt to changes and use new technologies as tools, not solutions. The RMA will challenge future leaders to become adept in technology and in their ability to apply new tools. Reliance on technology requires these leaders to be competent information warriors who can think critically and creatively, foster innovative ideas, communicate these effectively through the ranks and most important of all, be able to learn and relearn continuously. Coupled with a transformational leadership style that advocates participative management and empowerment of subordinates, 21st

century military leaders will certainly be better prepared to meet the challenges in the future.

The organisation must also provide the environment and the commitment to harness PME as a force multiplier. PME to develop military leaders must be seen as a career-long process, a cradle-to-grave system that is integrated with training. It must not be thought of as a deviation from the officer's duty, but as a central and continuing focus. To promote and sustain the culture of continuous learning, military organisations should increase their educational productivity through the extensive use of advanced educational technology and new pedagogical approaches. They should also concentrate on identifying key competencies of military leaders not just in terms of outputs but to also focus on the soft or thinking skills, qualities critical for transformational leadership. Finally, embracing a learning organisation culture involves more than just promulgating policies; it requires a whole list of other activities that entail effective management and measurement tools to be in place. These may run counter to existing military structures and cultures but these are steps that are imperative for unleashing a transformation that will enable military organisations to adequately respond to future security threats.

In the final analysis, it will be the quality of the military leaders, not past performances or technological advancement that will determine the outcome of any mission. "Good leadership" is essential not only as the ultimate battlefield force-multiplier but also the primary guardian of the institution.[47]

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[47] Walter F. Ulmer, Jr., "Military Leadership into the 21st Century : Another "Bridge too far?" *Parameters* Spring 1998, p 4-25.