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Editorial

The focus of this issue is on Learning and we feature three essays on the Learning Army. But we also provide a mix and included in this issue are articles on strategic studies, military history and military technology.

In his essay Dancing with Saddam Hussein MAJ (NS) Aaron Chia Eng Seng attempts to trace the steps of what he calls a "political dance" between two partners, Saddam Hussein and the US. He examines their relationship before the first Gulf War, during that war, and up to the time just before the war in Iraq when the article was written.

The eight-year Iran-Iraq war (1980-88) was a long and bloodied conflict. How did it finally end? MAJ Dexter Teo Kian Hwee attempts to explain this using various war termination theories in his essay The Iran-Iraq War: An Examination of War Termination Theories. It will be interesting to see how the current Gulf War will be terminated in the light of the theories covered in MAJ Dexter's essay.

LTA (NS) Toh Boon Ho and Mr Toh Boon Kwan argue in their essay, Poor Military Leadership or Flawed Military Organisation: The British Army and the Malayan Campaign that the failure of the British in the campaign could not be attributed to the quality of leadership alone, but that a wider perspective can be gained by analysing the weaknesses inherent in the force structures of the British Army.

The Use of Simulation to Study Complex Systems: A Study of the US Expeditionary Complex Systems describes a computer simulation project that was undertaken by a group of five SAF officers who are students of the US Naval Postgraduate School. The project uses simulation models to emulate the process of US expeditionary operations.

The three articles on Learning Army are winners of the COA Essay Competition 2001. In A Learning Army Translating Theory into Practice, LTA Benjamin Cher Tau Wei compares the approaches advocated by Peter Senge and David Garvin, and then goes on to propose a practical framework for how a learning army framework can be established within the SAF.

The Inner Game of Building a Learning Army introduces the "Inner Game" theory developed by Timothy Gallwey. Building on that theory, the author, MAJ Ong Kian Woei Andy then goes on to establish what he feels are the foundations required of a Learning Army in the SAF. In Army 21 Through a Learning Environment CPT Marcus Tan Wee Kian makes practical sense of the five disciplines of a Learning Organisation, by relating them to his personal observations and experiences in the SAF and in the wider social context.

We hope that the articles will stimulate discussion and debate among our readers. We welcome "Letters" on any of the articles published. Views and ideas can also be exchanged on the POINTER Discussion Forum which is hosted under the SAFTI section of the MINDEF Intranet Forums.

On a final note, we thank those who have submitted entries for the CDF Essay Competition - 2002. We would be publishing the winning entries in a later issue of POINTER.

Editor, POINTER

Letter to the Editor

I refer to the article, "Cyber-Terrorism: An Emerging Security Threat of the New Millennium". The writer presents a very detailed and informative view of the changing way we wage war in the 21st century. Such a change is not unexpected. However, in my humble opinion, armed forces should respond proactively and swiftly to the threat posed by the emergence of cyber terrorism.

A strong offence is the best defence. Rather than simply adopting a passive defensive posture against cyber attacks, defence establishments should also exploit this technology to their advantage. Cyber attack capabilities should be built up, and in the event of a war, used to disrupt or even disable the enemy before troops are deployed. Also as technology progresses, nations have to keep up with the changes and exploit the latest technology quickly in order to win wars.

To use a historical example, in World War I, combat was based heavily on entrenched fighting. Soldiers dug themselves in trenches and held their positions for as long as possible. In World War II, however, the same entrenched method would not work. This became evident when the Germans, using mechanised forces and blitzkrieg tactics, rendered the heavily fortified Maginot Line redundant.

Therefore, armed forces should pre-empt cyber-terrorism to minimise possible death and destruction that might arise from cyber-terrorist activity. A pre-emptive cyber-strike may even cost less in terms of lives and resources.

LCP Ian Quek, Centre of Leadership Development

Dancing with Saddam Hussein

by MAJ (NS) Aaron Chia Eng Seng, PhD

"War is not merely a political act, but also a true political instrument, a continuation of political intercourse, carrying on with other means."

Carl von Clausewitz¹

We have heard of the "fog of war". It suggests that in war commanders hardly ever have a clear picture of what is going on in the battlefield. Is there a similar "fog of diplomacy"? There appears to be such a thing between Iraq and the US (and the UN) as they carry out their political dance. Sometimes, it is difficult to see whether they are doing waltz, foxtrot, samba or cha-cha. Perhaps it is a "shadow dance".² It may be Saddam's "dance of death"³ this time.

In this article, the author attempts to unravel the dance steps between the US (and to some extent, the UN) and Saddam Hussein⁴ from before the Gulf War, during the war, and up to the present when the US threatens to invade Iraq. We see how the US uses the threat of war⁵ as a political instrument to carry out her political objectives. It gives reasons why the US should or should not attack Iraq. It concludes with some lessons learnt from this dance.

Politics of Information

One of the difficulties of writing this article is the uncertain reliability of many sources of information. Information is inevitably shaped by the political regime and by the hopes and wishes of its opponents. Moreover, after the Gulf War, information became a weapon in the confrontation between Iraq and some members of the UN Security Council. Other agencies such as UN organizations, non-government agencies, human rights and commercial organisations have their own particular perspectives. The Iraqi government encourages the view that the country's misfortune lies with the "30-nation conspiracy". The US however, wishes to emphasize Saddam's evil ("axis of evil") while Iraqi opposition groups highlight the ills and disasters inflicted by the Iraqi government. Some countries like France and Russia would like to maintain relations with Saddam Hussein while many countries are neutral. Some smaller countries are "forced" to take sides. Each country has its own political agenda. The little information obtainable from Iraq or contributed by the Iraqis and the media warfare played by certain countries compounded the problem.

Before the Gulf War

In the 1980s, Iraq was viewed as having strategic importance in the Gulf region while its purchasing power from oil revenues made it an attractive market for arms sales, consumer exports and civil contracts. Although the extent of Iraq's military expansion after the Iran-Iraq War was well known, the main occupation was to secure a share in this lucrative market.⁶ An economic climate in which European governments increasingly support export competition in defence and other sectors further encouraged this trend.

In the 1982 Iraq-Iran War, the US supported Iraq in many ways.⁷ She supplied Saddam with satellite photos of Iranian deployments. She allowed Iraqis to buy a wide variety of "dual use" equipment and materials from American suppliers. The list included helicopters to transport Iraqi officials; television cameras for "video surveillance applications", chemical-analysis equipment for the Iraq Atomic Energy Commission (IAEC), and shipments of "bacteria/ fungi/ protozoa" which could be used to make biological weapons. In 1987, although an Iraqi Exocet missile hit an American destroyer in the Persian Gulf, the US excused Iraq for making an unintentional mistake and instead accused Iran of escalating the war in the Gulf.⁸ US commandos

blew up Iranian oil platforms and attacked Iranian patrol boats.⁹ Iran fearing American intervention, gave up its war with Iraq. In 1988, Saddam bombed Kurdish rebels and civilians using a lethal cocktail of mustard gas, sarin, tabun and VX. There was only token official protest from the US at that time.¹⁰

In 1990, the US caught Iraq trying to buy electronic equipment and high-tech furnaces used to make triggers and parts for nuclear bombs.¹¹ Later, Saddam threatened "to burn Israel to the ground." Yet the US continued to see him as a useful, if distasteful, regional strongman right up to the moment he invaded Kuwait in August 1990.¹² The US was indeed a very cooperative partner in this waltz.

The Gulf War: Invasion of Kuwait

Iraq's invasion of Kuwait from August 1990 to February 1991 appeared to have been motivated mainly by her growing economic crisis following the Iran-Iraq War.¹³ Iraq demanded the Gulf states, especially Kuwait and Saudi Arabia to "forgive" the loans they made in support of Iraq during the war. Kuwait and UAE were also pressured not to overstep their oil quotas by Iraq and other oil states. The Iraqi government also charged Kuwait with "stealing" from the Rumailia oilfield that spanned their border, over which the two states had a long-standing dispute. The international response to the Iraqi invasion was swift and the unanimity of response of the Security Council was unprecedented. Within a few weeks, not only was an economic embargo on Iraq agreed on and implemented (under Resolution 661), Iraq's key oil pipelines, controlled by Turkey and Saudi Arabia, were shut down.

For most of the major players, it was not so much of the sovereignty of Kuwait that was at stake, but Saudi Arabia, the largest oil producer. It was believed that Iraq intended to threaten Saudi Arabia, if not invade it. As it was a major trading partner with the US and the key player of US policy in the Middle East, the US regarded her vital interests to be at stake. If this crisis had involved the invasion of a state not considered to be of interest to the US, the latter would probably be less eager to assume a leadership role. For the smaller and less powerful states in the Security Council, action to help a small state, which had been attacked by a larger neighbour, was viewed as an important principle. Defence of oil supplies was certainly a key issue, as could be observed by the weaker responses of the international community through numerous examples in the past when small states were infringed.

The refusal of the Iraqi regime to back down in the face of strong international pressure also took many of the participants by surprise. The Iraqi Government resorted to various kinds of bargaining and this signalled the start of another dance. On the political level, it tried to establish a link with the Palestine issue to be resolved as part of an overall regional settlement before dealing with the question of Kuwait. This ploy could be intended to delay the withdrawal of Kuwait and to enhance Iraq's political role in the Middle East. This was however rejected by the US and the international community.¹⁴

Using a more direct approach, the Iraqi regime took foreign hostages to fend off international military action. Saddam Hussein appeared to have only accepted the likelihood of war at the end of 1990. Even then, the conviction that the US would shy away from war due to possible heavy casualties and public opinion back home seemed to have encouraged brinkmanship. Saddam Hussein might have underestimated the chances of international military action in view of the fact that when Iraq attacked Iran in 1980, the Security Council sat on its hands.¹⁵

After the war, the issue was no longer Iraq's invasion of the sovereignty of Kuwait, but how Iraq could be coerced into accepting arms control and a variety of other measures under the ceasefire agreement. A consensus on how to do this was achieved in the major resolutions passed by the Security Council soon after the war, but at a cost of a good deal of ambiguity. Under pressure of subsequent events and Iraq's continued refusal to accept all the terms, the apparently united international front of early 1991 gradually began to unravel.

Let the real dance begin.

After the Gulf War

The US went to war to protect its strategic interests in the Gulf region, but the administration had no long-term political strategy to replace its policy of cooperation with Iraq. The war was perceived as being protecting Saudi Arabia and Kuwait, not about Iraq's governance. Furthermore once the war was over, the main focus of US interest in the Middle East turned towards an initiative to settle the Israeli-Palestinian conflict, taking advantage of the new balance of power in the region created by the Gulf crisis. There was no consensus within the administration on the importance of removing Saddam Hussein.¹⁶

After the war, economic sanctions on Iraq were imposed.¹⁷ These sanctions were designed to change Iraq's behaviour in the ways defined by the main requirements of Resolution 687: the elimination of Iraq's weapons of mass destruction (WMD), acceptance of Kuwait's sovereignty and its border and the return of Kuwaiti property. It did not include measures that sought to effect changes in the Iraqi constitution or the politico-legal structure of Iraqi society.¹⁸ Nor was there any provision to deal with the leadership of Iraq.¹⁹ A second goal, implicit in American and British policies was the downfall of the Iraqi regime. In the meantime, they constituted a form of "containment" and a means of maintaining pressure on Saddam Hussein.

America's allies in the region, most prominently Saudi Arabia, feared that a post-Saddam Iraq would splinter and destabilize the region.²⁰ The Shiites in the south might collude with their fellow religious fundamentalists in Iran threatening the Saudi border. In the north, the Kurds were agitating to break off parts of Iraq and Turkey to create a Kurdistan.²¹ Saddam was allowed to keep his tanks and helicopters, which he used to crush both the Shiite and Kurdish rebellions. Even an assassination attempt on former President Bush did not warrant strong action apart from sending a few cruise missiles into Baghdad. The American intelligence community, under orders from President Bill Clinton, did mount covert actions aimed at toppling Saddam in the 1990s, but by most accounts they were badly organized and half-hearted.²² The dance continues.

Meanwhile, Saddam Hussein was playing a cat-and-mouse game with regard to WMD. As part of the settlement imposed by America and its allies at the end of the Gulf War, Saddam Hussein was supposed to get rid of his existing stockpiles of chemical and biological weapons, and to allow inspectors to make sure none were being hidden or secretly manufactured. The UN inspectors did shut down his efforts to build a nuclear weapon. But Saddam Hussein continued to secretly work on his germ and chemical warfare program and some of these sites were revealed by his son-in-law, Kamel, when he defected.²³ Saddam Hussein kept up the dance with the inspectors, forcing a showdown in December 1998. The UN pulled out its inspectors, and the US and Britain launched Operation Desert Fox - four days of bombing that was supposed to teach Saddam a lesson and force his compliance. While the UN sanctions regime gradually eroded, allowing Saddam to trade easily on the black market, he was allegedly free to brew all the chemical/biological weapons he wanted.

In September 2002, the Security Council's unanimous passage of an historic resolution gave UN weapons inspectors "unimpeded, unconditional, and unrestricted access" to anyone and anywhere in Iraq that their search for WMD might lead them. The resolution gave Iraq a "final opportunity to comply with its disarmament obligations." Security Council Resolution 1441 states that Iraq has been and remains in material breach of earlier UN decrees. It gave Saddam Hussein 30 days to provide inspectors a complete report of all aspects of his WMD programs, from facilities to personnel. False statements or omissions "will constitute a further material breach" of Iraq's obligations. The resolution grants UN weapons inspectors increased authority beyond what they had had in the past including: unrestricted access within Iraq (including to the Presidential Palaces); deployment of UN security guards; the right to declare "exclusion zones" to freeze movement into and out of inspection sites; the right to destroy all prohibited weapons; and more. Any breach of the agreement will immediately be reported to the Security Council, which will then consider what "serious consequences" Iraq will face.

The Security Council's decision appears to be a triumph for the UN, but it is a triumph fraught with ambiguities as well as possibilities. The resolution did not signal international consensus, as much as a willingness to interpret the document differently, and resolve the differences if at some later date Iraq violates the agreement. The only thing that all players agreed on is that the ball is in Iraq's court. The

resolution did not specifically authorize the use of force, or unilateral US military action, if weapons inspectors are impeded. This is a win for France, Russia, and the majority of the US public, 60% of whom opposes a unilateral invasion of Iraq (83% would favour a multilateral invasion).²⁴ However, the resolution also did not stipulate that the Security Council must pass another resolution to authorize military action. Upon passage, President Bush said, "America will be making only one determination: Is Iraq meeting the terms of the Security Council resolution or not? The United States has agreed to discuss any material breach with the Security Council, but without jeopardizing our freedom of action to defend our country. If Iraq fails to fully comply, the United States and other nations will disarm Saddam Hussein."²⁵

Iraq announced on September 16 that she would allow the return of UN weapons inspectors into the country. Iraq's sudden acceptance of inspectors after four years of strong resistance has caused many to be quite sceptical of Saddam's true motives. Some viewed this as merely a delay tactic. Saddam escapes a war for the time being by "resuming" unconditional compliance with the arms inspection system. Is he leading the UN into another dance of deception? It will not be easy this time for the threat of war continues to loom ahead as the US prepares for war.

Reasons for Attacking Iraq

There are some valid reasons for attacking Iraq. Saddam Hussein has refused the inspectors entry into his country for the last four years. In his latest declaration in end 2002, little new information on his WMD was found.²⁶ He probably has chemical or biological weapons in his possession and is likely to use them sooner or later. There is no guarantee that the inspectors would be able to ensure complete disarmament, because the Iraqis could easily hide chemical and biological weapons materials in places where the inspectors would be unable to find them. A pre-emptive strike would eliminate this threat permanently.

Apart from the US (and Britain), the rest of the Security Council would be satisfied with the destruction of WMD; but the US wants not only that but also a regime change. Iraq has one of the largest reservoirs of oil on the planet. After Saddam is out of power, the US may be able to set up a friendly government that will sell them all the oil they want at reasonable prices. Perhaps it is also a diversion from the economic woes the US is having. The additional military spending will certainly not hurt the economy. Perhaps it is Bush's political stunt aimed at winning support for his Republican Party in this year's mid-term congressional elections.

Reasons for Not Attacking Iraq

Some of the reasons for not attacking Iraq are even more compelling. Iraq has not invaded another country or directly threatened the US or her interests. There do not seem to have been any significant developments concerning Iraq itself. There is no new demand for action against Iraq from other regimes in the region, even though they are no friends of Saddam Hussein. Most nations of the world, including those of Western Europe and the Middle East, are reluctant to wage war on Iraq, and have decided to wait and see if Iraq makes good on its promises before taking action. Of course some of the countries, notably Russia and France, have their own agendas since Iraq owes them billions of dollars and are interested in developing Iraq's southern oilfields. Countries such as Syria, once a bitter enemy of Iraq and which sent troops to join the 1990 coalition, have since improved diplomatic and economic ties with Baghdad. Iran, Syria, and Libya all stand accused by the Bush administration of sponsoring terrorism (and in some cases, developing weapons of mass destruction). They have no desire to support a precedent for toppling an Arab regime. Syria and Iran appear to prefer a weak Saddam Hussein to having a US-backed regime next door.

The US has never gone to war pre-emptively. She has gone to the aid of her allies but not without provocation. She may be setting a dangerous precedence if she attacks Iraq by contravening UN Charter Article 51. President Bush has made all sorts of accusations against Hussein, but offered no public evidence to support his assertions: "The Iraqi regime has violated all [its] obligations. It possesses and produces chemical and biological weapons. It is seeking nuclear weapons. It has given shelter and support to terrorism, and practices terror against its own people."²⁷ He trotted out the already discredited charge of "Hussein's links to international terrorist groups" that even the CIA has refuted.²⁸

As in 1990, US attempts to garner Arab support for war are complicated by accusations of double standards and anti-American hatred. The US insists Iraq must comply with all UN resolutions,²⁹ while Israel for decades has ignored others demanding her withdrawal from occupied Arab lands.³⁰ Many Arabs leaders are unhappy over US failure to curb Israel's attacks against the Palestinians. The US has also remained silent on Israel's nuclear stockpile while focusing solely on Iraq's suspected pursuit of WMD. In 1981, Israel attacked Iraq's Osirak nuclear reactor facility. Israel argued that it was necessary to pre-emptively eliminate a threat to its security. The attack was condemned by the international community, including the US. Today, President Bush advocates that for which the US has condemned Israel and on a far larger scale. For most Arab countries, despite their reluctance to upset a superpower that some rely on for economic assistance or even military protection, the US can expect little more than tacit public diplomatic support for toppling President Saddam Hussein. There is also the question of succession. It is far from clear that America will be able to control the next leader of Iraq and the manufacture of WMD or defend the territorial integrity of Iraq against its neighbours.

Going to war with Iraq means that the US will be killing the same people they claim they are trying to rescue. Iraq may destroy her own oil fields, food supplies and power plants and blame America for the devastation.³¹ She may also destabilize the Middle East region. "It will open the gates of hell in the Middle East."³² Iraq may launch an attack against Israel in an attempt to draw Israel into the war, an event that would be intended to rally support for Iraq from the Arab world. A war could alienate the Middle East, which could affect negatively the US and the world oil dealings with them and cause them to withdraw their support for the war on terrorism. The Iraqi people themselves could become a weapon of mass destruction if they are convinced that the West and its Arab neighbours conspire against them.

Saddam Hussein may also try to use his WMD arsenal. Intelligence experts have warned that he may be "flushing" his small, easy-to-conceal biological agents, trying to get them out of the country before an American invasion. A vial of bugs or toxins that could kill thousands could fit in a suitcase or a diplomatic pouch.

There is any number of grim end-game scenarios. Saddam Hussein could try blackmail, threatening to unleash smallpox or some other grotesque virus in any city (especially an American one) if US forces invade. He could lash out in a final spasm of violence, raining chemical weapons down on US troops and handing out his bio-weapons to terrorists. Moreover, the WMD sites may be accidentally bombed, giving rise to an epidemic disaster.

The invasion would not be a replay of the Gulf War or the Afghan War. Today's Iraqi Army may have only one third the number of soldiers that it had at the start of the Gulf War but it is still much larger and better organized than the motley Taliban. The original Gulf War coalition has dwindled from the 16 countries that sent troops to just two countries at the moment - the US and Britain. Air power is unlikely to have quite the same effect this time in Iraq than it had in either the Afghanistan or the Gulf War. The Iraqis have had ten years of experience being bombed and, more importantly, there is no counterpart to the Northern Alliance ready to fight the necessary ground war in Iraq.³³

Lessons Learnt

The weakening international consensus and the lack of clarity over the goals of the sanctions have allowed Saddam Hussein to exploit the growing differences of opinion. The staying power of the Iraqi regime and her continued resistance to the eradication of all WMD indicated the extent to which a regime can resist international instruments of coercion. When common purpose is not sustained among leading Security Council members, coherent responses to Iraq's defiance became increasingly difficult. There is increasing resentment at the way US policy is seen to drive decisions, and at the high-handedness of some Security Council permanent members. Some of the decisions appear to be based primarily on national foreign policy priorities and hidden agendas. Not enough effort is spent in resolving the underlying problems that caused the conflicts. Quick fixes usually do not work. Military force or economic sanctions will not resolve the range of complex national and regional problems especially if there is no clear and agreed sense of what longer

term outcomes are desirable. It seems that small states cannot afford to depend much on the UN or international community for their security concerns. They probably will not be considered important enough.

The political and legal case for attacking Iraq is made on the basis of Saddam's WMD program. This has the advantage of being an issue on which the regime in Baghdad has consistently defied UN Security Council resolutions. President Bush shook most of the world into thinking he was going to war, and he is likely to get a better inspections regime than anyone thought possible. However, the US may find other excuses to attack Iraq; President Bush appears likely to wage war on Iraq. The military build-up and the diplomatic efforts, including the deployment of US troops in the Middle East and the strengthening of the anti-Saddam Hussein forces are producing a strong momentum towards war that can leave him with no choice but to attack Iraq. The US may decide soon since after March 2003, the heat will make war more difficult and less effective. The world cannot afford to wait too long, for the world economy is strained by the possibility of war.

The US may win the battle (if there is one) this time, but not the war. For without proper control for the export of WMD, these weapons will continue to be a threat in future. Without considering the long-term consequences of her actions, she will continue to face threats to her security. Without consistent policies, she will alienate her supporters and the world community. The US may be strong militarily and economically for the moment but she will face perils once adversarial countries obtain their military advantage, asymmetrically or otherwise. Likewise, small states have to be consistent with their foreign policies and consider long-term consequences of their decisions.

Conclusion

We have seen how intricate a political dance between states can be and how war can be used to further political aims. There are reasons to support the attack on Iraq but they are overwhelmed by its objections. Although peaceful means to resolve conflicts are preferred, much depends on the political will of the stronger states. Power still rules. Moreover, world bodies like the UN are constrained by the political agendas of their members. Small states must take extra precautions to protect themselves.

It takes two to tango. Saddam Hussein cannot dance without a willing partner. The US has started the war drums. This time it is for the war dance.³⁴ The decade long dance is nearly over. Will it be a death dance for Saddam Hussein or will he survive this one? Will there be a new dance partner for the US?

Regardless of the outcome, a new dance will emerge

This article was submitted to POINTER in Jan 2003.

Endnotes

1. Carl Von Clausewitz, *On War*, eds. Michael Howard and Peter Paret, Princeton University Press, Princeton, New Jersey, 1976, p. 99.

2. As Jung says, "The shadow is the negative side of the personality, the sum of all those unpleasant qualities we like to hide, together with the insufficiently developed functions and the contents of the personal unconscious." Here shadow dance signifies the actions and intentions by both parties that are unclear or difficult to decipher.

3. The "Dance of Death" was originally a species of spectacular play akin to the English moralities. It has been traced back to the middle of the fourteenth century. The epidemics so frequent and so destructive at that time, such as the Black Death, brought before popular imagination the subject of death and its universal sway. The dramatic movement then developing led to its treatment in the dramatic form.

4. Saddam Hussein and Iraq is used synonymously.

5. There is a good possibility that it will lead to war.

6. Sarah Graham-Brown, *Sanctioning Saddam: The Politics of Intervention in Iraq*, I. B. Tauris & Co. Ltd, 1999, p. 1.

7. Christopher Dickey and Evan Thomas, "How the US Helped Create Saddam Hussein," in *Global Policy Forum*, September 23, 2002.

8. Ibid.

9. Ibid.

10. Ibid.

11. Ibid.

12. Ibid.

13. Efraim Karsh and Inari Rautsi, *Saddam Hussein, a Political Biography*, London, Brassey's, 1991, p. 204-211.

14. Although the proposal was rejected, the idea of an international conference on Palestine was taken up by France and US during the run-up of the war. The conference was proposed by the Soviet Union years before. See Karsh and Rautsi, p. 229-231.

15. Brian Urquhart, *The UN and International Security after the Cold War*, in Adam Roberts and Benedict Kingsbury (eds), "United Nations, Divided World: the UN's Roles in International Relations," Oxford University Press, p. 84.

16. Paul Wolfowitz, "The United States and Iraq" in John Calabrese (ed.) *The Future of Iraq*, Washington DC, Middle East Institute, p. 108.

17. Three reasons were given by Martin Indyk, Graham Fuller, Anthony Cordesman and Phebe Marr in "Symposium on Dual Containment," *Middle East Policy*, Vol. 3, No. 1, 1994, pp 17-18.

18. Marjoleine Zieck, *UNHCR and Voluntary Repatriation of Refugees: A Legal Analysis*, The Hague and London, 1997, p. 213-214.

19. Peter Hohenfellner, Chairman of the Iraq Sanctions Committee, 1991-1992, interview in *World Chronicle*, 20 May 1992, p. 3.

20. Dickey and Thomas, op cit.

21. Ibid.

22. Ibid.

23. David Albright and Robert Kelley, "Has Iraq come clean at last?" in *Bulletin of the Atomic Scientists*, Nov/Dec 1995.

24. *CNN/USA Today* poll, September 2002.

25. Remarks by President Bush on the UN Security Council Resolution, 8 November 2002.

26. "More Nations Attack Iraq Documents," *Straits Times*, December 21 2002, p. 7.

27. Remarks by President Bush on Iraq at Cincinnati Museum Center, 7 October 2002.

28. Romesh Ratnesar, "Iraq and Al-Qaeda: Is there a Link," *Time*, 26 August 2002.

29. Justin Raimondo, "Backdoor to War," in *Washington Post*, 18 Sep 02.

30. For a list of Israeli's transgressions, refer to Paul Findley, "Deliberate Deceptions: Facing the Facts About the US/Israeli Relationship," Chicago: Lawrence Hill, 1998, p. 192-194.

31. "Iraq May Destroy Its Oil Fields And Put Blame On US," *Straits Times*, December 20, 2003, p. 3.

32. Arab League Secretary-General, Amr Mussa, warning against military action in Iraq, *Newsweek*, September 16-23, p. 4.

33. The US may obtain some support from the Kurdish separatists.

34. A tribal dance performed before a battle.



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The Iran Iraq (1980-88) War An Examination of War Termination Theories

by MAJ Dexter Teo Kian Hwee

The Iran-Iraq War started on 22 September 1980. Initially, most countries treated this war as nothing more than border skirmishes between two neighbouring countries and were also quick to label Iran as the aggressor then (not surprising after the Islamic Revolution in Iran in 1979). After eight long years of fighting, the war finally ended when both Iraq and Iran accepted UN Resolution 598 in August 1988. This ended the eight-year Gulf War, the longest and bloodiest conflict between two Third World states in the post-1945 era. Iraq was eventually criticised for breaching international security and peace and was also accused of aggression against Iran.¹

From border skirmishes to the use of chemical weapons, the involvement of Superpowers and the enormous loss of resources, this Iran-Iraq war was terminated without any clear winner and loser. So why did the war stop? This paper will examine some key events or opportunities during the war period which Iraq or Iran could have used to end the war earlier. Thereafter the paper will also discuss why the war did not end earlier despite the opportunities, before we proceed to discuss the War Termination Theories.

Definition of Terms

The term "termination of war", in simple terms, refers to the end of fighting. In general, there are four common ways of terminating a war and they are: ceasefire or suspension of arms, armistice, capitulation, and unconditional surrender. While there were opportunities for this Iraq-Iran War to end earlier, it did not happen.

Key Events that Might Have Terminated the War Earlier

In the following paragraphs, we will discuss three significant events or opportunities that might have allowed Iran or Iraq to seek to an early end to the war.

First, both Iran and Iraq agreed to a ceasefire agreement on attacks on civilian targets on 18 February 1984. But neither Iran nor Iraq used this agreement to extend the ceasefire to permanently terminating the war. Instead, there was an escalation of war in February May 1984, when Iraq introduced and made extensive use of chemical weapons and attacked Iranian oil export facilities in Kharg Island and tankers to temporarily cut much of Iran's oil exports. Iraq then immediately sought a ceasefire. However, it was not surprising that Iran refused and vowed to fight back despite the further economic setback. Iran retaliated by attacking ships and tankers in the Southern Gulf waters. With this, all earlier agreed ceasefires ceased.

Next, the crash in oil prices severely limited the cash which Iran required for essential military and civilian needs in the winter of 1985-86. The situation was so severe that the Islamic Republic considered it prudent to cease fighting. At this point in time, it was generally believed that the new Iranian system had become so established that it could absorb a dramatic reversal of war policy. Overall, the conflict had provided Khomeini with an opportunity to consolidate the Islamic Revolution, but he also was quick to realise that ordinary Iranians were becoming war-weary. He realised that imposing further economic austerity on the people, combined with a measure of coercion to prosecute the war effectively would erode the mass base that his regime enjoyed. With this, he reckoned that a stage had been reached when continuing hostilities would damage the revolution rather than strengthen it.² He therefore accepted a truce. However, the truce did not last long and the "elusive" termination of this war never had a chance at all. Having emerged from the war more united and cohesive than before, Iraq raided Kharg Island again in September October 1986 and attacked Iran's Larak oil terminal in November 1986 to temporarily cut Iran's oil export again. Now,

despite the further economic setback, Iran was determined to fight back, and before long, the "war of cities" resumed.³

Finally, there were the battles at Iraq's Fao Peninsula. The surprise attack on Fao by Iranian troops in February 1986 and the successful repulsion of Iraqi counter-attacks marked one of the major turning points in the war. Fao raised serious doubts in the region, as well as in Moscow and Washington, about Iraq's ability to use its qualitative military superiority effectively. Besides having a population three times more than Iraq, the less well-equipped Iranian forces also appeared to be much more highly motivated than those of Iraq. The breakthrough at Fao only seemed to confirm that an Iranian victory was possible and was a matter of time. However, Iran's subsequent attacks did not make much headway after Fao, and in April 1988, the Iranian forces were in turn driven out of Fao. Until then, Iraq had always deliberately sought to avoid high casualty rates for fear of undermining the already tepid popular support for the war.⁴ But in Fao in 1988, the Ba'th regime signalled the change in its commitment and Iraq seemed ready and committed to continue this war further.

Why the War Did Not End Earlier

Having noted that there were opportunities for the war to end earlier, one might wonder why it did not happen then. In reality, there were other factors that might have prolonged the war intentionally or unintentionally. These factors included achieving the war aims, the behaviour of the state leaders during the period, the support of the populace and the military capabilities then and, finally, the external factors. We shall now examine and discuss these factors accordingly.

First, neither Iran nor Iraq was close to achieving their war aims during the eight-year war. Iraq's war aim was simply to destabilise and overthrow the Iranian regime through the invasion,⁵ while Iran's war aim was to destroy the Iraqi war machine and the removal of the Ba'th regime in Baghdad with the hope that this war would become a prime instrument for exporting the Islamic revolution.⁶ During the war, none of the countries had achieved decisive victory that would threaten the other country to surrender or agreed to a peace settlement. For example, none of the countries had captured or gone as far as to threaten the capitals Baghdad or Tehran itself. All the fighting only happened around the border regions. In fact, if the war aims were not achieved, it would be disastrous for either country's leaders to answer to their long-suffering populace for ending the war.

Second, the continued in-power of the two most strong-headed and aggressive leaders Saddam Hussein in Iraq and Ayatollah Khomeini in Iran would imply that to achieve peace was never going to be easy. To these two leaders, anything short of victory would be unimaginable and tantamount to political suicide. From the start of the war till the end in 1988, these two leaders remained in power. If it was not for other reasons, which we would discuss later, the war might have continued for many more years.

Next, there was the involvement of the superpowers in the Gulf from the onset. While none of the superpowers had actually sent any troops to participate in this war, they had nevertheless exerted a significant influence on the course of the conflict. Although both the United States and the Soviet Union had different agendas, they had nevertheless provided financial support, necessary weapons and war materials to Iraq at critical times. For the United States, apart from its main reason being its hostility towards the Islamic Revolution in Iran, supporting Iraq in the war meant that the United States and its Gulf allies had also succeeded in breaching the special relationship between Baghdad and Moscow.⁷ As for the Soviet Union, ensuring that Iran would not win the war would ensure that Iran's Islamic influence and the spread of Muslim fundamentalism would not reach the southern Soviet republics. With these external factors, immediate ceasefire was not going to be any sooner.

The War Finally Ended

This war is known to be a bloody and an expensive conflict. Towards the end of the war, both Iran and Iraq were feeling the effects of this prolonged war. When the war eventually ended in August 1988, both countries had suffered the following. On the number of casualties, it was estimated that the total war dead

was 262 000 Iranians and 105 000 Iraqis. With another 700 000 injured, this summed up to a total of over one million casualties for the two countries.⁸ On the direct monetary costs, Iraq spent between US\$74-US\$91 billion on the conduct of the war and another £41.94 billion on military imports, whereas Iran's costs were US\$94-US\$112 billion and £11.26 billion respectively. As for the indirect cost due to the loss of income from oil and agricultural produce, it was estimated that the sums were US\$561 billion and US\$627 billion for Iraq and Iran respectively.

In mid-1987, there were several indications that the Iranian leaders were at least reassessing their approach to the war. First, Iran's willingness to tolerate the superpowers' decision to escort Kuwaiti shipping suggested that Iran somehow welcomed the diversion in a sideshow of the war rather than concentrate on the serious prosecution of the war on land. Second, Iran's unwillingness to reject the Security Council Resolution of July 1987 outright but sought modifications was also indicative of a change in attitude. Third, Iran's still ambiguous war aims had nonetheless been modified over previous months; the demand for the removal of Saddam Hussein still stood, but the insistence on the removal of the Ba'th regime, reparations, and the installation of an Islamic republic had disappeared. And finally, the stream of volunteers for the front had dwindled and Iran's leaders, notably Rafsanjani, had begun to talk publicly in mid-1987 of terminating the war unless it began to interfere with the political administration of its society.⁹ Eventually, two sets of events catalysed Iran into the decision to seek a quick ceasefire in mid-1988; first, Iraqi's intensive use of long-range missiles on Iranian cities, and chemical weapons especially on 28 March 1988 when 5 000 Iranians were killed in Halabja; and second, a change in the balance of power on the ground particularly in the loss of Fao to Iraq in April 1988 which shattered the morale of Iranian forces.

Also, towards the end of the war, Iran's vast demographic advantage of 3:1 was not much in evidence at the battlefield. While Iraq was able to increase its manpower by some 150 000 men and expand and reorganise its forces from 30 to 39 infantry divisions between 1986 and 1988, Iran's manpower, on the other hand, had fallen by 100 000 men in the same period. A declining pool of volunteers in Iran resulted in greater reliance on conscripts, but they could not match the former in zeal. Coupled with difficulties in getting logistical support, ceasefire seemed like a possible option to Iran now, especially after losing the psychological belief that its mass manpower superiority could fight an attrition war.

Since June 1982, Iraq had declared truces and ceasefires a few times, and on occasions unilaterally, hoping to end the war early. These happened mainly after realising that they were not going to achieve the expected swift victory, and Iraq would face serious economic problems should the war prolong, something which they had not anticipated.¹⁰ Finally in early 1988, Iraqi sought to end the war through an escalation of war effort. To achieve this, the Iraqi used chemical weapons on Halabja, recaptured the Fao peninsula and drove the Iranian forces out of Majnoon islands. Suddenly the Iraqis seemed "alive and rejuvenated" to continue the war effort when the Iranians seemed to have lost their initial zest. And when Iran accepted the UN Resolution 598 in July 1988, Iraq readily agreed to the ceasefire and abided to the resolution accordingly.

The Gulf Co-operation Council (GCC) and the UN Security Council (UNSC) had always wanted this war to terminate. In particular the GCC, if it had its way, would never have allowed this war to happen in the first place. Oil exportation through the Gulf faced too much risk when the two "superpowers" of Middle East locked horns. The answer of the GCC states seemed to be that Iraq must be pressed towards compromise while Iran must be reintegrated into the region. To achieve this, GCC would use all means including financing any war damage claims by both Iran and Iraq, in order to ensure termination of the war. This offer provided both Iran and Iraq good "excuses" to end the war without having to admit defeat and yet have the money to reconstruct their countries.¹¹

Having discussed the events that might have ended the war earlier and the eventual end of the war, we will now examine the four termination of war theories *vis-à-vis* the eventual end of the war.

Theory on Cost Benefit Explanations

This theory states that the warring countries will only terminate a war when their leaders calculate that the costs of continuing exceed the value of their war aims.

Both Iran and Iraq had suffered enormously in terms of casualties and monetarily. As discussed earlier, this war was known to be a most bloody and expensive war. Both countries had a total of over one million casualties¹² and monetarily wise, the eight-year war had cost both Iraq and Iran in excess of US\$700 billion each. It was definitely a very high price to pay in trying to achieve one's war aim.

Iraq's war aim was simply to destabilise and overthrow the Iranian regime through the invasion.¹³ However, instead of achieving victory swiftly as expected, Iraq was dragged into a prolonged war with Iran. One might say that Iraq had "forsaken" its war aim since June 1982 when it first declared its unilateral withdrawal from Iranian territory. Alas, the war continued for eight long years during which Iraq faced serious economic problems that had not been anticipated. Finally in 1988, Iraq hoped that through escalation of its war effort, it could force Iran to negotiate an end to the war. On this count, one might say that the main motivation for Iraq to seek a quick end to this war was the high cost associated with it.

As for Iran, although its announced war aim was to destroy the Iraqi war machine and the removal of the Ba'th regime in Baghdad, it had also always hoped to use this war as a prime instrument to exporting the revolution.¹⁴ However, Iran's ill-equipped military was always going to face much difficulty against the formidable military forces of Iraq. With the war prolonged beyond anyone's expectation, Iran's economy was largely devastated and the civilian population had suffered and were severely exhausted. As the war went on, the gap between Iran's military needs and its political aims widened. Eventually, Khomeini realised that the war had reached a stage that continuing hostilities would damage the revolution rather than strengthen it. Khomeini had therefore reckoned that the cost in continuing the war had far exceeded the benefit in achieving its war aim.

Winners and Losers Theory

This theory postulates that war ends when one state wins the war and the other state is defeated, i.e. there is a clear-cut victor and loser. In this instance, the loser is defeated and no longer poses a military threat as its war fighting capabilities are destroyed.

This war did not weaken the Iraq military. Iraq had in fact emerged from the eight-year conflict a far stronger power: its ground forces grew from 200 000 troops (12 divisions employing 2 750 tanks) in 1980 to some 955 000 troops (50 divisions and 6 000 tanks) in 1988. The Iraqi Air Force had also been increased during the same period from 322 fighting aircraft to 500. This formidable force was far better equipped than in 1980 and had also acquired substantial operational experience.¹⁵

As for Iran, its ground forces growth was "caught up" by the Iraqis, despite its superior manpower mass. Although Iran had an eventual strength of one million in 1988 as compared to 240 000 in 1980, it had suffered heavy losses of tanks and combat aircraft. During the war, it lost 600 tanks and 320 aircraft. Iran's final figures stood at 1 150 tanks and 118 aircraft accordingly.¹⁶ Despite the losses, Iran had however not lost its overall military capabilities and threatened to continue the war with Iraq if necessary. For the stoical populace of the Islamic republic, hardship and other privations such as fuel rationing and electricity cuts were tolerable in the cause of victory, not otherwise.

Hence with both countries still capable of continuing the war if required, the Winners and Losers Theory did not explain the end of Iran-Iraq War as expected.

Hawks and Doves Theory

In this theory, the proposition explains that if the "hawkish" fraction, who started the war, is replaced by the "dovish" fraction, the "dovish" fraction will seek to terminate the war. And it is generally believed that military leaders are concerned with victory and thus more prone to use force than the civilian leaders. For the Iran-Iraq War, we will attempt to identify the hard-line and the "moderate" group who might affect Iranian policy only, since Iraq did not have any change in its political leaders in this period.¹⁷

When Mohammad Ali Khomeini took over the Iranian Presidency in August 1981, the change in leadership did not end the war there and then. On the contrary, the Iranians were even more determined to fight in view of Khomeini's perceived spiritual leadership. The specific character of Khomeini's Islamic Revolution constituted a powerful moral asset in repelling the Iraqi attack.¹⁸ Even till the day that Iran accepted the ceasefire in the war, Khomeini had warned the regions' governments that, "All of you be partners in the adventurism and crimes created by the USA. We have not yet engaged in any action that would engulf the entire region in blood and fire, making it totally unstable. You can be sure that you will be the losers in this new chapter."¹⁹ Clearly, Khomeini was a "hawkish" leader and with him assuming power in Iran then, the Iran-Iraq War was not going to end any sooner. Hence it is not necessarily true that a civilian leader is less prone to use military force to resolve conflicts.

On 3 July 1988, a fortnight before accepting a ceasefire in the Iran-Iraq War, the powerful speaker of parliament (since July 1980) and military Commander-in-Chief (since Jun 1988) Hashemi Rafsanjani said that Iran's new priority was to break out of international isolation. He had long believed that the major casualty of this war had been the creditability of the Islamic Republic among its own rank and file. He believed that the longer the war prolonged, the more Iran could no longer effectively call upon its populace for crusades and sacrifices. It was for this reason that Rafsanjani had indulged in pre-emptive self-criticism of past policies long before the final ceasefire call in 1988.²⁰ As a "dovish" leader, Rafsanjani had taken a calculated but avoidable risk in persuading the "hawkish" Khomeini to accept the ceasefire.

In this Iran-Iraq War, there was no classic case of a "dovish" leader taking over from a "hawkish" leader in both countries to "facilitate" the termination of this war. We had however witnessed a "dovish" leader trying to end the war earlier although this took him a few years to achieve. In this respect, this theory did not explain the end of this war satisfactorily.

Second Order Change Theory

This theory states that when leaders admit to themselves that the future consequences of their war course threaten other values which they hold dear, they will decide to seek an end to the war.²¹ In essence, these leaders have undergone a psychological process, which forces them to see the problem from a higher or second order paradigm.

During this war, there was no clear incident to show that the Iranian and Iraqi leaders had a paradigm shift in their values, such as Japan's decision to surrender after the atomic bombs in World War II. The closest this war had in term of a dramatic policy change among the leaders was that of the Iranian spiritual leader, Khomeini's decision to end the war eventually.

In the initial years, economic hardship and other privations such as fuel rationing and electricity cuts were tolerable by the stoical populace of the Islamic Republic only in the cause of victory and not otherwise. Ending the war without achieving the war aim was unthinkable at that point in time. However, by 1988, there was little optimism about this goal. There were indicators that Iran's soldiers were unwilling and unable to continue the fight, and had lost a string of military battles in Fao, Shalamchah, Mehran and Majnoon. Coupled with a sense of isolation and confrontation not only with Iraq but also with the whole world, this only hastened Iran's decision to end the war then.²² Finally in July 1988, realising that Iran was not going to win the war, and continuing hostilities would damage the revolution rather than strengthen it, Khomeini decided to end the war. However to end the war without admitting defeat, Khomeini only accepted the ceasefire after changing the war slogan from "exporting the revolution" to that of "saving the revolution". With this change, Khomeini effectively prepared his people for the ceasefire and avoiding repercussions from his stoical populace.

In this respect, the Second Order Change theory failed to explain the termination of this war, as none of the Iranian and Iraqi leaders had undergone any psychological process that forced them to see the problem from a higher or second order paradigm. In reality, Khomeini's change of policy was more likely an attempt to "save" himself from the repercussions of ending the war without victory.

Conclusion

To Iran, the war was the main means of rallying popular support behind the regime. The sudden announcement by Tehran that it was accepting the ceasefire was greeted with astonishment in the outside world but a resigned bewilderment within Iran. In contrast to Iran's subdued reaction to the ceasefire, Iraq loudly praised this development. The Theory of Cost Benefit had explained the termination of this Iran-Iraq War best. After all, the persistence of the war for nearly a decade despite its exorbitant costs and against tremendous odds could hardly be considered a demonstration of moderation. The prolonged and painful process of disillusionment undergone by the Iranian society and its political system during these demanding years eventually culminated in the ceasefire in the summer of 1988.²³

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Poor Military Leadership or Flawed Military Organisation?: The British army and the Malayan Campaign

by LTA (NS) Toh Boon Ho and Mr Toh Boon Kwan

"...the reason [why we lost Malaya] was that the people we sent out were an inferior troop of military and naval men."

Winston Churchill, 1949/50¹

The issue of military leadership figures prominently in recent studies of the Malayan Campaign. The war-time British Prime Minister, Winston Churchill, in a post-war reflection on the disastrous Malayan Campaign, heaped the blame on inept local leadership.² Similarly, historians have pinpointed the crucial cause for Singapore's rapid collapse to an abject failure in military leadership. Both Farrell and Warren have faulted Lieutenant-General A. E. Percival, G.O.C. Malaya, for conducting a poor defence of Malaya and Singapore. The grave German threat to the metropole in 1941 led to the inadequate defence of the Far Eastern colonies against determined Japanese predation. Dealt a bad hand, Malaya Command compounded its own difficulties with poor command decisions. Inherent command contradictions from grand strategy down to the tactical level ultimately compromised the British defence of Singapore. Commander of 8th Australian Division, Major-General H. Gordon Bennett and his Australian Brigadiers H. B. Taylor and D. S. Maxwell were singled out for their flawed leadership, thereby contributing to the swift capitulation of the Singapore defences as the Australian fighting contingent disintegrated under the Japanese onslaught in the Battle for Singapore. Warren concluded that Percival was simply not cut out for command of a "fast-moving campaign in dense, tropical country" while Bennett was an "unequivocal failure".³

This perspective, however, deserves greater examination. Without doubt, Percival played his hand badly when dealt a bad hand.⁴ But Percival's leadership failure was not unique among his peers in the early part of the Second World War. British generals were simply unable to conduct fast-moving campaigns on the frozen wastes of Norway, the fields of Flanders, in the deserts of North Africa or the jungles in the Far East. This pattern of events indicates that leadership failure is a necessary but insufficient explanation for the failure of the British army to defend the Empire against its enemies. How then do we account for the dismal display by the British army in Malaya and Singapore?

The answer lies in the detailed analysis of the British army's operational and tactical developments during the inter-war period, the role of the British army vis-à-vis the Royal Navy (RN) and Royal Air Force (RAF), as well as the lessons drawn by the British army in the war against Germany and the reforms carried out by the British army following its defeat in the Battle of France in 1940. The weakness of the British command and control system, poor communications, flawed force structures, absence of a single unifying doctrine, weak training structures and lack of material resources stacked up the odds against any British general at the outset of World War II.⁵

From Imperial Policing to Total War

The poor performance of the British army at the onset of war can be attributed to developments during the inter-war period. After the First World War, the British army reverted to imperial policing. The financial stringency imposed on the armed services by the Treasury during the inter-war period also meant that spending focused on the demands at hand, i.e. the tools of imperial policing rather than developing heavy firepower weapons. The dispersal of army battalions across the British Empire hindered higher formation training. Furthermore, the lack of adequate training facilities at overseas garrisons resulted in troops becoming "stale". The crucial factor remained "the traditional assumption that the British Army was to be deployed and equipped for small colonial wars and not gigantic continental struggles". The dismal showing by British and Commonwealth land forces against the Imperial Japanese Army (IJA) at the onset of the

Pacific War, therefore, was a manifestation of the pains inherent in an organisation that was transiting from imperial policing to total war.⁶

The Cinderella Service

In the pre-war period, both the RN and the RAF were favoured over the army in terms of men and material. Imperial defence was based on the tenet that the RN and RAF were the first line of empire defence against a rival Great Power while the army contained the internal threats to imperial authority. Inadequate naval and air forces meant that the conventional shield was weak and imposed inordinate demands on an army that had to rapidly expand its competencies to include fighting total wars against the conventional forces of the Great Powers. The outbreak of war did not change the army's Cinderella status. After the fall of France, the army remained relegated to a secondary function with priority given to building up the RN and RAF.⁷ Under the infamous "Singapore Strategy", the RN was supposed to be the main deterrent force in the defence of the British Empire.⁸ The rising likelihood that the RN would not be able to send a fleet to the Far East led to the belated adoption of an airpower strategy in 1940. This relied on the RAF to hold the line in Malaya.⁹ The absence of the Main Fleet and the inadequate air forces assigned to the Far East meant that the army had to step in to fill the breach. Without doubt, the army was badly let down by the RN and RAF in Malaya. The token Force Z "flying squadron" was an unbalanced force and stood no chance against the well-trained, combat proven land-based naval bombers of the Imperial Japanese Navy (IJN).¹⁰ The RAF, in a pre-war appraisal, estimated that it could destroy 40% of an invasion fleet at sea, leaving the survivors to be mopped up by the army. In reality, the RAF was unable to weaken the enemy invasion fleet sufficiently for the British army to defend its ground and conceded air superiority to the Japanese air forces by the fourth day of the Malayan Campaign.¹¹ The dismal performance by the two favoured services meant that the disadvantaged British army was forced to carry the brunt of the fighting in Malaya.

Men and material shortages complicated the army's defence plans. The army establishment in Malaya was undermanned and under-equipped. There were shortages of trained men because experienced officers and non-commissioned officers were redeployed to the United Kingdom and India to raise new units. Units were not up to strength.¹² There were equipment shortfalls and the men were armed with obsolete weapons. One anti-tank artillery unit in Malaya was armed with several types of guns, some of which were captured from the Italians.¹³ Under the circumstances, commanders and men had to resort to improvisation to maintain their combat efficiency. For example, Indian army units armed themselves with Molotov cocktails to make up their anti-tank guns shortage.¹⁴

British Army Doctrine

Notwithstanding the British army's neglected status relative to the other two armed services, its adoption of a dogmatic doctrine ensured that it failed to effectively utilise its limited resources. To the British military mind, combat is inherently structured. It can therefore be centralised and controlled through a command structure that emphasized obedience to orders, rather than exercising initiative. However, this "system of inflexible, autocratic command and control" co-existed uneasily with the contradictory belief that "giving subordinates wider latitude to use their own initiative...was a positive handicap to success".¹⁵ Therefore, "British army doctrinal manuals stated general principles but did not provide concrete examples to show how these principles should be put into practice." It was a deliberate omission "designed to enable each individual commander to decide how to apply the principles in the light of the particular circumstances confronting him." The General Staff's doctrinal thinking relied "on the notion that when it came to a crisis the British army would always be able to improvise a successful solution to any problem". As French wryly observed, "senior British officers credited themselves with a rare ability to do so."¹⁶ However, the quintessential Napoleonic element proved harder to find in reality and the British faith in their uniquely British "character" to deliver the desired results on the battlefield was badly misplaced.

Training

Percival had come under criticism for not imposing a common doctrine and training his men hard enough.¹⁷ The fault did not lay with the man on the spot but on the organisation. Malaya Command's pre-war military training policy reflected the British army's *laissez-faire* approach to training. General training instructions were issued to subordinate units but it was left to individual commanders to interpret the instructions. It was not foreseen at that time that the *laissez-faire* attitude held by senior British commanders had an adverse effect on training. Since each unit commander was free to interpret doctrine as he saw fit, an idiosyncratic training approach developed. Thus, the quality of combat units was uneven and overly dependant on the training regime imposed by the individual unit commanders. The net result was that some units performed admirably while others collapsed under the strain of combat.¹⁸ Officers like Lieutenant-Colonel Ian Stewart and Bennett were ardent trainers who emphasised jungle training. Thus, the men of their units the British 2nd Argyll and Sutherland Highlanders and the Australian 8th Division were put through a tough regime of route marches and jungle manoeuvres. The Australians, for example, undertook field training throughout the day in spite of the enforced siesta between 1400 1600 hours, ostensibly to prevent heat stroke. The "Diggers" carried on despite disapproval from Malaya Command.¹⁹ The rigorous training in jungle manoeuvres would eventually reap dividends. In the battle for Bakri on 19 January 1942, the Australian 2/19 Battalion scored a notable victory against the Japanese. Moving rapidly through the jungle, two companies of this unit successfully enveloped a Japanese thrust against their lines, killing 140 Japanese for the loss of 10 men. This was the first time during the campaign that the British army overran the enemy and was able to remain on the battlefield long enough to take measure of the enemy defeat.²⁰ But such successes were rare in view of the generally poor state of training of the Commonwealth forces. In comparison, the Japanese 25th Army trained hard for the mission at hand. They engaged in realistic training exercises and manoeuvres prior to the attack on Malaya.²¹

Senior British officers also believed that given their democratic culture and ethos, they could best flourish in an army without battle drills. "Battles, they believed, were... too unpredictable to be reduced to a series of drills. Attempting to do so was positively dangerous because it would produce stereotyped tactics." Coupled to this perspective was the fear "that if the rank and file were taught to exercise their intelligence and initiative they would question orders and break down under the stress of battle." As a result, too much emphasis and training time was placed on developing blind obedience to orders, instead of inculcating battle drills.²² It was therefore no surprise that Brigadier Torrance, Percival's Chief of Staff, labelled Stewart as a crank for training his Scotsmen in battle drills.²³ Stewart was simply too unorthodox for the British army establishment. Sadly, the British army's disdain towards battle drill would result in disaster in Malaya. Green troops, if trained in battle drill, could at least fend for themselves by applying drills learnt during peacetime. Instead, troops were trained to follow and execute orders from their leaders. But once leaders fell in battle, the troops were paralysed since no leaders survived to issue orders for troops to execute. In contrast, Japanese troops learnt battle drills, for example, in dismounted vehicle anti-ambush drills. Thus, they could rapidly dismount and take on the Commonwealth defenders and push the latter back.²⁴

Similar weaknesses may be found in British commander training regimes. The peacetime training of battalion and brigade commanders proved inadequate for the rigours of operational commands in war. They were unable to step-up to the next command if dictated by circumstances.²⁵ Both Brigadier A. C. M. Paris and Lieutenant-Colonel Stewart were promoted to divisional and brigade commands respectively during the course of the campaign but failed miserably. Even among the senior commanders, their training at the prestigious Staff College taught them to be strategists, rather than divisional or corps commanders. Chief of Imperial General Staff Sir Alan Brooke would lament that the holocaust of the First World War had robbed his army of promising leaders. Lieutenant-General Sir Henry Pownall, who arrived in Singapore on 23 December 1941 as the incoming Commander-in-Chief Far East, felt that Percival did not make a good field commander. But both men missed the point that it was the poor British training systems that contributed to the dearth of talent in high command and manifested itself in the rapid turnover of wartime brigade and divisional commanders in Malaya.²⁶ The stresses of operational combat command stretched the physical limits of senior officers. Major-General D. M. Murray-Lyon, 11th Indian Division commander, fainted from sheer physical fatigue following the defeat at Jitra. Other commanders felt the physical strain of sleepless nights while retreating south.²⁷ Both Brigadiers W. St J. Carpendale and K. A. Garrett were granted sick leave and quietly relieved of command.²⁸

The Japanese training system shared similarities with its British counterpart. It also emphasised blind obedience to orders. But the Japanese training system was redeemed by its emphasis on developing fighting spirit (*seishin*). The Japanese soldier was renowned for his adherence to a cult of sacrifice. Contemporary armies talk about fighting to the last man. Only the IJA practised it.²⁹ Coupled to this were Japanese standing orders that emphasised aggressive action at all times. For example, if conflicting orders arrived at the same time, Japanese commanders were trained to adopt the more aggressive order for implementation.³⁰ In Malaya, the IJA was ordered to advance at all costs (*Kirimomi Sakusen*).³¹ Thus, IJA units were extremely aggressive.

Command, Control and Communications

The autocratic British command and control system was heavily dependant on good communications to ensure its effectiveness in the heat of battle. The British communications system was based on the triumvirate of wireless, cable and despatch riders. But the troops in Malaya were ill-served by its communications network at the outset of war. Wireless communications in Malaya were extremely unreliable. Wireless transmissions tend to break up or were limited to certain hours of the day due to the topographical or climatic conditions.³² To rectify the problem, Eric Lomax, former signals officer, recalled that:

*"We resorted to sending wireless signals down the phone lines, an ingenious improvisation which we christened Line Assisted Wireless, by setting up our aerials a few feet below the overhead wires: the outgoing signals were attracted to the wires and another radio further down the line of wire could capture the signals."*³³

But this tied the unit to the overhead telephone wires along the trunk road. Air interdiction of the trunk road would destroy this means of communication. Wireless sets were also extremely scarce. Infantry battalions only had a single unreliable signal set to communicate with brigade HQ.³⁴ A misguided emphasis on wireless security slowed down operations. Lieutenant-Colonel Charles Kappe, commanding 8th Australian Division Signals, commented that

"Too much [sic] stress was placed on security by our higher headquarters; code names of units, wireless station calls were changed repeatedly with the result that commanders and Signals personnel became perplexed and harassed...much emphasis had been placed on the use of cipher...resulting in messages being delayed for hours awaiting enciphering and deciphering..."

Commanders would have been better off transmitting orders "in clear" since the troops would have executed the orders before the enemy could act on such signals intelligence. All forward communications with the companies and platoons had to be via cable communications or runners. Cable communications, though reliable and able to carry heavy signals traffic, were highly vulnerable to shelling. Furthermore, Malaya Command faced a shortage of telephone cable. Consequently, Malaya Command was overly dependent on civilian telephone lines to communicate with commanders up north in Malaya. Communications would be disrupted during shift changes and the military was not allocated priority even during hostilities.³⁵ Despatch riders and battalion runners proved too slow and written orders that arrived were out of date and out of sync with the tactical situation. Thus, the troops were unable to react quickly to the quick tempo of operations which characterised the IJA *modus operandi*. The resulting loss in operational tempo ensured that the IJA would hold the initiative.

British communications difficulties contributed to major reverses. The disaster at Slim River was precipitated by the failure of frontline units to give early warning to the rear units of the Japanese breakthrough. It finally took a despatch rider to warn a field regiment to rapidly unlimber and stop the Japanese tank assault coming down the trunk road.³⁶ The 22nd Indian Brigade was lost due to loss of communications with its sister 8th Indian Brigade and 9th Indian Division HQ. Its radio trucks had been withdrawn to the rear. Brigade communications were reliant on railway telegraph lines which were cut due to a premature demolition of a railway bridge carrying the telegraph lines. In an effort to locate the 22nd Indian Brigade, the Divisional commander was killed in a skirmish while forward of the 8th Indian Brigade defence lines.³⁷

Morale and Discipline

Unlike the army units based in the United Kingdom, British army units in Malaya largely comprised regular formations. The soldiers of the 8th Australian Division were all volunteers, as were men in the Indian army units serving in Malaya.³⁸ Ostensibly, this meant that the men were marked by disposition and aptitude for service in the military. However, the lack of a unifying jungle warfare doctrine and differing unit training regimes resulted in different responses by the fighting men to the hardships of actual campaigning. The Argylls and the Australian units lasted far longer under the strain of combat in view of their rigorous pre-war training and strong unit cohesion.³⁹ But there was a limit to endurance. Units that were placed at the frontline far too long had a tendency to break at the slightest enemy pressure. While covering the army's retreat to Kampar, the Argylls were pounced by the Imperial Guards, broke down and retreated in disorder.⁴⁰ The long retreats and sleepless nights led to frayed nerves among the fighting men without any prospect of relief, rest and refitting. Some of the Indian army units fled at the first sign of trouble. Murray-Lyon recounted that men of the 1/8 Punjab and 2/16 Punjab ran to the rear when sappers blew up a nearby bridge. He had to personally intervene at gunpoint to rally them. The 5/2nd Punjab fared no better, British officers having to draw their pistols to stop the rout on at least two occasions.⁴¹ The 11th Indian Division bore the brunt of the initial fighting in Northern Malaya but had to shoulder the burden far too long than it could handle. By the time it had retreated behind the Australians in Johor, it was already a broken force.

Men who had undergone adequate military training could be expected to obey orders and stay under command. But Malaya Command received under-trained reinforcements during the last stages of the campaign. Such men broke down easily during battle and were not spared any mercy by the Japanese. In the battles around Mandai, the Imperial Guards overran the Australian positions. Some of the shell-shocked defenders did not put up any resistance and were cowering in fear and avoided hand-to-hand combat. They were rapidly despatched.⁴²

Discipline was breaking down in the last days preceding Singapore's fall. Percival and his senior subordinates faced problems in exercising any form of control over the defenders. The poor state of communications impeded command and control. Men were deserting and straggling away from the frontline. Some Indian army units gave up fighting altogether. Malaya Command was literally disintegrating under Percival. The straggling and desertion problem was becoming too serious to ignore. These problems undermined the fighting efficiency of the forces remaining in the line which was barely holding up with the numbers remaining.⁴³

Force Structures and Firepower

Tactical-level firepower in British combat units proved woefully inadequate to their tasks in the war against the Japanese. The weakness arose not so much from lack of firepower, but from its misemployment in flawed organisational structures. British brigades and battalions had little organic firepower assets. Artillery was centralised at the Divisional level. Too much firepower was concentrated in higher-echelon units to the detriment of tactical-level units. An artillery field regiment supported a British brigade of three infantry battalions. Since each British battalion could count on a battery of field artillery to support its operations, it was only issued with two 3-inch mortars. Each platoon had a single 2-inch mortar, which was only effective for throwing smoke screens. There was no organic machine-gun company. The artillery support, however, was dependant on good communications between the infantry and artillery.⁴⁴ The battalion relayed orders to its supporting battery via wireless and telephone lines. But wireless communication in Malaya was extremely unreliable. Telephone lines were susceptible to shelling. At Gemas, the Australian ambush of Japanese bicycle troops was marred by the failure of the supporting artillery to shell the Japanese troop concentrations. The telephone lines was discovered and cut by infiltrating Japanese troops. On Singapore Island, the full weight of the Australian artillery was not brought to bear on the assaulting Japanese troops on the night of 8/9 February 1942 due to communication disruption. Intensive Japanese shelling severed most of the cable communications and wireless communications broke down.⁴⁵

Based on unit-to-unit comparison, the Japanese battalion commander had more firepower assets at his disposal compared to his British counterpart. The Japanese battalion could use its machine-gun company to

pin down the British defenders, send infantry down the flanks and envelope the British position. Japanese infantry sections were equipped with 50 mm mortars to provide additional firepower. These section mortars outnumbered and outranged the single British 2-inch platoon mortar. The two Japanese 70 mm battalion guns also outranged the British 3-inch mortars and were more versatile since the guns were capable of either an indirect fire or direct fire role. The Japanese regiment commander could also rely on his four organic regimental guns to provide additional fire-support in both offence and defence.⁴⁶

Organisational Weakness and Combat Effectiveness

Historians and Malayan Campaign veterans have argued that the scattered locations of the RAF airfields necessitated the dispersal of the army in Malaya and rendered troops vulnerable to piecemeal defeat.⁴⁷ But dispersal in itself did not necessarily condemn the British brigades to defeat in detail at the hands of the IJA. The Japanese 25th Army also committed its forces to the attack in equal piecemeal fashion.⁴⁸ The deployment of brigades in all-round defence of Malaya was in line with British doctrine in 1941. Following the Dunkirk debacle, drawing lessons from the German blitzkrieg campaign, the British high command concluded in the Report of the Bartholomew Committee that British units must mount an "all-round" defence against enemy blitzkrieg tactics. The Bartholomew Committee also decided that henceforth, the divisional organisation should be re-organised into brigade groups as the optimum fighting formation. But two factors turned the situation in favour of the Japanese. First, was the lack of firepower in British brigades and battalions. The fire-support available to the brigade formation proved too weak in both the defence and the offence. The 45th Indian Brigade at Bakri was decimated in part due to the lack of artillery. Only one Australian battery supported the entire brigade whereas the normal allotment should have been one field regiment.⁴⁹ Neither was the communication link to this meagre fire-support adequate. Wireless performed poorly in Malaya. This meant that the artillery support never arrived or was often late. The end result was consistent failure in Malaya throughout 1941-42 as the brigade groups without adequate organic fire-support, fell prey to the enemy. The reality of under-armed combat formations made a mockery of the centrality of firepower in British doctrine. The British army further compounded its problem in emphasising all-round defence, holding extended fronts with too few men, leaving it vulnerable to Japanese *schwerpunkts*. It lacked enough mobile reserves to screen the gaps or to counter-attack any enemy penetrations. The infantry units also lacked organic firepower to impose heavy flanking fire on Japanese penetrations. Poor communications meant that artillery fire could not be summoned in time to break up the Japanese attacks and seal off the penetrations. Second, the poor communications infrastructure undermined the effectiveness of the autocratic British command and control system. Messages could not be transmitted rapidly from tactical units to high command for commanders to draft orders to address the changing combat situation. Orders, in turn, could not be disseminated fast enough to the troops in the field for execution. Thus, commanders and troops in Malaya were neither able to wrest the initiative from the Japanese nor cope with their rapid thrusts.

Conclusion

Percival and his generals did exactly what the system expected them or trained them to do. Even though they may be rightly faulted for making poor command decisions, the neglected and flawed organisation that they served ensured that a successful defence of Malaya was very slim. They were the victims of the contradictions in the British army, which alternated between a demand for blind obedience from troops and giving commanders flexibility to interpret doctrine. For the autocratic command and control system to work, it was crucial to have good communications. But this proved the Achilles heel in Malaya. Wireless communications was unreliable. Cable communications were either vulnerable to enemy interdiction or inadequate. Orders delivered by despatch riders or runners proved too slow to keep up with the rapidly changing battle situations. The wide latitude granted to commanders to interpret doctrine led to poor co-ordination between the different arms and varying standards of training. The widespread disdain against the adoption of battle drills and poor commander training regimes did not help matters. The flawed force structures placed the British commander at a firepower disadvantage compared to his Japanese counterpart. The generally poor morale of the troops and material shortages compounded the problem. This is not to say that the IJA was any better in terms of organisation. The IJA was plagued by poor logistics planning, intense rivalry between army commanders and weak co-ordination between the army and supporting air units. But

on the whole, the IJA proved to be a less inefficient army vis-à-vis its British counterpart.⁵⁰ As a final word, Stewart's post-mortem on the Malayan Campaign is pertinent:

*"It was the failure of a MENTAL OUTLOOK and of the SYSTEM which was its expression. Leaders faithfully and efficiently served that system in the light of the mentality and tempo to which they had been trained. To this extent they are not to blame...The Jap was much more resourceful, and set a far higher standard of speed in all his actions, tactics apart...A Nation of Theorists was beaten by a Nation of Action."*⁵¹

Endnotes

1 Raymond Callahan, "Churchill and Singapore", in *Sixty Years On: The Fall of Singapore Revisited*, eds. Brian Farrell & Sandy Hunter (Singapore: Eastern Universities Press, 2002), pp. 160, 170.

2 Ibid.

3 Alan Warren, *Singapore 1942: Britain's Greatest Defeat* (Singapore: Talisman, 2002), pp. 290-291; Malcolm H. Murfett, John N. Miksic, Brian P. Farrell & Chiang Ming Shun, *Between Two Oceans: A Military History of Singapore From First Settlement to Final British Withdrawal* (Singapore: Oxford University Press, 1999), pp. 180-194, 198-238, 341-360; "New light on pivotal WWII defeat", *The Canberra Times*, 20 April 2002; Mark Baker, "When The Mighty Had Fallen", *The Age*, 15 February 2002; Toh Boon Ho, "Book Review *Between Two Oceans: A Military History of Singapore from First Settlement to Final British Withdrawal*", *Pointer: Journal of the Singapore Armed Forces*, 26, 1 (January March 2000), pp. 115-116.

4 Sandy Hunter, "The Fall of Singapore Revisited", in *Sixty Years On*, eds. Farrell & Hunter, p. 318; Farrell, et al., *Between Two Oceans*, p. 218.

5 See the excellent study by David French, *Raising Churchill's Army: The British Army and the War against Germany 1919-1945* (Oxford: Oxford University Press, 2000), pp. 1-11, 274-285.

6 Ibid., pp. 81-82; Brian Bond and Williamson Murray, "The British Armed Forces, 1918-39", in *Military Effectiveness Volume II: The Interwar Period*, eds. Allan R. Millett & Williamson Murray (Boston: Allen & Unwin, 1988), pp. 99, 101-104, 107; Imperial War Museum (IWM) Percival Papers (PP), P22 F41, Lieutenant-Colonel S. W. Kirby, "Notes on Singapore", p. 13; IWM PP, P21 F39, A. E. Percival, "Handing Over Notes (G.S.O. I Malaya Command)", p. 3; Paul Kennedy, *The Rise and Fall of the Great Powers: Economic Change and Military Conflict from 1500 to 2000* (New York: Random House, 1987), p. 229.

7 French, *Raising Churchill's Army*, pp. 50, 64, 70, 184-185.

8 Malcolm H. Murfett, 'Reflections on an Enduring Theme: The "Singapore Strategy" at Sixty', in *Sixty Years On*, eds. Farrell & Hunter, pp. 3-28; Paul Haggie, *Britannia at Bay: The Defence of the British Empire Against Japan, 1931-1941* (Oxford: Clarendon Press, 1981); Ian Hamill, *The Strategic Illusion: The Singapore Strategy and the Defence of Australia and New Zealand, 1919-1942* (Singapore: Singapore University Press, 1981); James Neidpath, *The Singapore Naval Base and the Defence of Britain's Eastern Empire, 1919-1941* (Oxford: Clarendon Press, 1981); W. David McIntyre, *The Rise and Fall of the Singapore Naval Base, 1919-1942* (London: Macmillan, 1979).

9 Callahan, "Churchill and Singapore", pp. 157-159, 166; Warren, *Singapore 1942*, p. 27.

10 The Japanese naval air units did not merely excel at anti-shipping strikes. They were also well-trained in long-range bombing missions against land targets, a core competency developed during the 1937-1941 phase of the Sino-Japanese War. These core competencies were put to good effect in the opening raids of the Malayan Campaign against Singapore and the sinking of Force Z. Unbeknownst to the British, these tactics were established practice in the IJN and shocked British commanders. See Mark R. Peattie, *Sunburst: The Rise of Japanese Naval Air Power 1909-1941* (Annapolis, Maryland: Naval Institute Press, 2001), pp. 102-128, 168-170; Philip Charrier, "The Evolution of a Stereotype: The Royal Navy and the Japanese 'Martial Type', 1900-1945", *War & Society*, 19, 1 (May 2001), pp. 34-40; Louis Allen, *Singapore 1941-1942* (Revised Edition) (London: Frank Cass, 1993), pp. 220-223; Arthur Swinson, *Defeat in Malaya: The Fall of Singapore* (London: Macdonald & Co., 1970), p. 52; A. E. Percival, *The War in Malaya* (London: Eyre & Spottiswoode, 1949), pp. 112-113.

11 Australian War Memorial (AWM) MSS1393, Lieutenant-Colonel C. H. Kappe, The Malayan Campaign, "The Summing Up", p. vi; Farrell, et al., *Between Two Oceans*, pp. 184, 200; Clifford Kinvig, *Scapegoat: General Percival of Singapore* (London: Brassey's, 1996), pp. 131-132, 239; Allen, *Singapore 1941-1942*, p. 52.

12 John Smyth, *Percival and the Tragedy of Singapore* (London: Macdonald, 1971), pp. 86-88.

13 Peter Elphick, *Singapore: The Pregnable Fortress: A Study in Deception, Discord and Desertion* (London: Hodder & Stoughton, 1995), p. 257.

14 Warren, *Singapore 1942*, p. 45.

15 See Toh Boon Ho, "Book Review *Command or Control? Command, Training and Tactics in the British and German Armies, 1888-1918*", *Pointer: Journal of the Singapore Armed Forces*, 25, 1 (January - March 1999), pp. 118-123; Idem, "Book Review *Raising Churchill's Army: The British Army and the War against Germany 1919-1945*", *Pointer: Journal of the Singapore Armed Forces*, 28, 2 (April June 2002), pp. 141-145; French, *Raising Churchill's Army*, pp. 19, 45, 55-57.

16 French, *Raising Churchill's Army*, pp. 46-47.

17 Public Record Office (PRO) WO 106/2550A, Narratives of personal experiences in the Malayan Campaign 1941 Dec.- 1942 July; Warren, *Singapore 1942*, pp. 29, 45-46; Farrell, et al., *Between Two Oceans*, pp. 186-187.

18 French, *Raising Churchill's Army*, p. 173; Bond and Murray, "The British Armed Forces, 1918-39", pp. 120-121; IWM PP, P23 F49, Lieutenant-Colonel B. H. Ashmore, "Some Personal Observations of the Malaya Campaign 1940-1942", pp. 1, 15-16; Elphick, *Singapore*, p. 189; Clifford Kinvig, "General Percival and the Fall of Singapore", in *Sixty Years On*, eds. Farrell & Hunter, p. 244. The Indian army initially followed the British army in not imposing a common doctrine on their commanders. But sharp losses sustained during active operations in the North-West Frontier during the inter-war period led to the introduction of comprehensive training regimes and battle drills. Sadly, this practice did not appear to have taken root with the Indian army units in Malaya. See T. R. Moreman, *The Army in India and the Development of Frontier Warfare, 1849-1947* (London: Macmillan Press Ltd, 1998), pp. xvii-xxiii, 173-186; Idem, "'Small Wars' and 'Imperial Policing': The British Army and the Theory and Practice of Colonial Warfare in the British Empire, 1919-1939", *The Journal of Strategic Studies*, 19, 4 (December 1996), pp. 105-131.

19 John Wyett, *Staff Wallah: At the Fall of Singapore* (St Leonards, NSW: Allen & Unwin, 1996), p. 19. In contrast, the 2nd Loyals, part of the Singapore Fortress troops, ended their training at 1300 hours and only had rudimentary jungle training. See IWM Department of Sound Records, Lieutenant-Colonel J. C. Johnson, Accession no. 005199/04.

20 Warren, *Singapore 1942*, p. 168.

21 Stanley Falk, *Seventy Days to Singapore: The Malayan Campaign, 1941-1942* (London: Robert Hale, 1975), pp. 24-27; Meirion Harries and Susie Harries, *Soldiers of the Sun: The Rise and Fall of the Imperial Japanese Army 1868-1945* (London: Heinemann, 1991), p. 237.

22 French, *Raising Churchill's Army*, pp. 46, 55-58, 125-126.

23 Farrell, et al., *Between Two Oceans*, p. 187.

24 Falk, *Seventy Days to Singapore*, p. 26.

25 French, *Raising Churchill's Army*, pp. 57-63.

26 Ibid., pp. 1-2; Callahan, "Churchill and Singapore", pp. 162, 166.

27 Warren, *Singapore 1942*, pp. 97-98.

28 Elphick, *Singapore*, p. 249.

29 Karl Hack and Kevin Blackburn, *Did Singapore Have to Fall: Churchill and the Impregnable Fortress* (London: RoutledgeCurzon, forthcoming), chapter 4; Harries and Harries, *Soldiers of the Sun*, pp. 83-84; William Slim, *Defeat into Victory: Battling Japan in Burma and India, 1942-1945* (New York: Cooper Square Press, 2000), p. 538.

30 Alvin D. Coox, *Nomonhan: Japan Against Russia, 1939* (Stanford: Stanford University Press, 1990), p. 722.

31 Akashi Yoji, "General Yamashita Tomoyuki: Commander of the Twenty-Fifth Army", in *Sixty Years On*, eds. Farrell & Hunter, pp. 190-191.

32 Percival, *The War in Malaya*, p. 59; AWM MSS1393, Kappe, The Malayan Campaign, "The Summing Up", p. xviii; Elphick, *Singapore*, pp. 209-210, 253; Jonathan Moffatt and Audrey Holmes McCormick, *Moon over Malaya: A Tale of Argylls and Marines* (Coventry: Coombe Publishing, 1999), p. 23.

33 Eric Lomax, *The Railway Man* (London: Jonathan Cape, 1995), p. 59. Line Assisted Wireless was still being used as late as 1951 during the Malayan Emergency. Following the ambush of the car carrying the British High Commissioner to the Federation of Malaya, Sir Henry Gurney, to Fraser's Hill, the surviving members of the escort party summoned for help using this means of communication. See FO 371/93118, no 2, inward telegram no. 951, 6 October 1951. Printed in A. J. Stockwell, ed., *British Documents on the End of Empire: Malaya, Part II: The Communist Insurrection* (London: HMSO, 1995), doc. 246, pp. 301-302.

34 Smyth, *Percival*, pp. 84-85; IWM Johnson, Accession no. 005199/04; Elphick, *Singapore*, pp. 208-209.

35 AWM MSS1393, Kappe, The Malayan Campaign, "The Summing Up", p. xviii; Elphick, *Singapore*, pp. 208-211; Kinvig, "General Percival and the Fall of Singapore", p. 246.

36 Warren, *Singapore 1942*, pp. 141-142.

37 Ibid., pp. 193-197; Falk, *Seventy Days to Singapore*, pp. 192-193; Allen, *Singapore 1941-1942*, p. 159.

38 Warren, *Singapore 1942*, pp. 29-38.

39 Mark Johnston, *At the Front Line: Experiences of Australian Soldiers in World War II* (Cambridge: Cambridge University Press, 1996), pp. 69-71.

40 Warren, *Singapore 1942*, p. 120; Elphick, *Singapore*, pp. 249-250.

41 Warren, *Singapore 1942*, pp. 100, 111, 120; Elphick, *Singapore*, pp. 242, 249-250.

42 Henry P. Frei, "The Island Battle: Japanese Soldiers Remember the Conquest of Singapore", in *Sixty Years On*, eds. Farrell & Hunter, p. 225.

43 Alec Ng Wei Kwang and Toh Boon Ho, "Yamashita and the Assault on Singapore: Was Yamashita's success a bluff that worked or the culmination of calculated risk-taking?", *The Veteran*, 8 (August 2002), p. 88.

44 French, *Raising Churchill's Army*, pp. 39-40.

45 Warren, *Singapore 1942*, pp. 156, 224; Falk, *Seventy Days to Singapore*, pp. 166-168; Farrell, et al., *Between Two Oceans*, p. 227; Neil Wilson, "Rue, Britannia, as a vital outpost falls", *Herald Sun*, 9 February 2002; AWM MSS0776, Lieutenant-Colonel R. F. Oakes, *Singapore Story*, p. 146.

46 AWM MSS1393, Kappe, The Malayan Campaign, "The Summing Up", p. xiv; Falk, *Seventy Days to Singapore*, p. 29; Toh Boon Ho, "Book Review *Japan's Greatest Victory, Britain's Worst Defeat*", *Pointer: Journal of the Singapore Armed Forces*, 26, 4 (October-December 2000), p. 134; Ian V. Hogg, *The Encyclopedia of Infantry Weapons of World War II* (London: Arms & Armour Press, 1977), pp. 104-107, 113-114, 140-141.

47 Farrell, et al., *Between Two Oceans*, pp. 193, 198; AWM MSS1393, Kappe, The Malayan Campaign, "The Summing Up", pp. v-vi; IWM PP, P21 F26, Notes and Narrative by Percival on Fall of Malaya with Comments by Heath and others, pp. 3-5.

48 At Jitra, the Japanese committed two battalions against the 6th and 15th Indian Brigades. At Slim River, a Japanese infantry battalion and a tank regiment squared off against two Indian brigades. See Kinvig, "General Percival and the Fall of Singapore", p. 248; Farrell, et al., *Between Two Oceans*, pp. 202, 210; Warren, *Singapore 1942*, p. 134; Falk, *Seventy Days to Singapore*, p. 150.

49 Warren, *Singapore 1942*, p. 159; Falk, *Seventy Days to Singapore*, p. 170.

50 Alec Ng Wei Kwang and Toh Boon Ho, "Yamashita and the Assault on Singapore", pp. 90-92; Toh Boon Ho, "Book Review *Command or Control?*", pp. 122-123.

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The Use of Model Simulation to Study Complex Systems A Study on US Expeditionary Warfare System

by Students of the US Naval Postgraduate School

"The technology-driven, knowledge-based battlefield of the 21st century will offer the SAF many means of getting around our resource constraints. The new technologies will confer a tactical and even strategic advantage to those armed forces which can harness them."

Dr Tony Tan,

DPM and Minister for Defence, 15 Feb 2000¹

Technological change may well revolutionize warfare in the 21st century. Countries that can exploit emerging technologies and synergize the same with innovative operational doctrines and organizational adaptation could doubtless achieve far higher levels of relative military effectiveness². However, the ability to absorb and exploit new technological advances includes not only the acquisition of new weapon hardware or the development of warfighting concepts, but also in new ways of conducting experimentation and testing to explore technological boundaries.

As the development and emphasis on integrated (or joint) warfare continues, coupled with the rapid emerging technologies, military systems are increasingly integrated into a "network" of system of systems. However, in order to achieve this higher level of military effectiveness, it is imperative that individual systems (or component systems) are synergized and integrated seamlessly into the larger (overall) system.

Conventionally, decisions made to acquire new systems or to improve existing military systems' capabilities are based largely on the merits of the new or improved system over the existing system. Although some qualitative analysis would be carried out to analyze the net effect of the new component system on the overall system, its contribution to the overall system had always been difficult to quantify. This difficulty arises from the lack of an established methodology or tool to track and measure the performance of each component system, the interactions between them, as well as their effects on the larger system.

To enable a military planner to fully understand and appreciate the effects that a new component system would have on the overall system performance, there is a need for a systematic methodology that will enable a full investigation of the characteristics and behaviour of all these component systems and the interactions between them. One such methodology is the use of computer model simulation. As modeling languages become more powerful and easy to use, it is possible to use models to emulate large-scale system of systems, so to gather insightful information that would provide military planners with a better understanding of the characteristics and behaviour of those systems.

Background

Beginning early 2002 at the Naval Postgraduate School (NPS) in Monterey, California, a group of SAF and USN officers, under the System Engineering and Integration (SEI) curriculum, embarked on a campus-wide integrated project to study the US Expeditionary Warfare (ExWar) Forces and Systems.³ The objective of the study was to identify the significant factors affecting the overall performance of an ExWar Force, and to evaluate the performance between the Current, Planned⁴(2015-2020), and Conceptual US Expeditionary Force that was designed by students attending the Total Ship Systems Engineering, Aeronautical Engineering and Space System curriculums.

To enable the officers to have a better understanding of the Expeditionary Force, the elements that affect its performance and areas that can be further exploited to further enhance the force's effectiveness, a SEI sub-group consisting of five Singapore Armed Forces officers, under the guidance of three NPS Faculty members, was later formed to design and build simulation models to facilitate the study. The aim of this article is to relate the work done by these officers and more importantly, to share the methodology employed in the study. This methodology of utilizing discrete event modeling simulation to emulate complex systems has a far-reaching potential of being used in many other areas.

The Expeditionary Warfare Simulation Model

Expeditionary Warfare is perhaps one of the most complex forms of warfare, an intricate amalgamation of Air, Naval and Land forces to form a powerful, mobile, far-reaching and quick-reacting power-projection force. An Expeditionary Force is synonymous with a system of systems, where all the elements within it are intimately linked such that any deficiency in one area will have an immense impact on the overall capability of the force.

To enable a systematic and comprehensive study on Expeditionary Warfare and the factors that affect its performance, a simulation model was built with EXTEND⁵, a discrete event simulation tool. This model emulates the end-to end processes involved in accumulating, assembling, deploying and sustaining Expeditionary Forces ashore. It provided a means for full accounting of all the moving parts and their interactions within the ExWar system and allowed for studies into the variability inherent in all these processes.

The ExWar model is a high resolution model that takes account of and tracks all entities such as ships, aircraft, vehicles, troops, ammunition, fuel, food, water in an expeditionary operation. It essentially emulates the entire process that the US Marine Corps (USMC) would carry out in an expeditionary operation, starting from the Continental USA (CONUS) to the final destination at the Objective (a military goal to be captured).

Variations were made to the model to enable new warfighting concepts to be studied and compared. In essence, the traditional way of conducting an expeditionary operation; by assaulting a beachhead and establishing a logistics depot ashore (also known as the Iron Mountain) before the landing of the main assault force, was compared against a new warfighting concept; by projecting the assault force directly from the ship to the Objective (known as Ship-To-Objective Maneuver (STOM)) and sustaining the force logistically through a Sea Base depot. The main advantages of the latter concept are the elimination of the operational pause that is needed to capture the Iron Mountain in the current concept as well as the reduction of logistics force vulnerability by staging the logistics depot out at sea. The models built allowed a systematic and quantitative analysis of the current concept against the viability of the new concept, with different force architectures.

Some of the significant force structure differences between the three architectures used in the study are:

	Current Force Architecture (2002-2003)	Planned Force Architecture (2015-2020)	Conceptual Force Architecture (2015-2020)
MEB-sized Marine Force	5500 landing troops	5500 landing troops	5500 troops
Land Vehicles	154 x AAV	154 x AAV	154 x AAV
Air Vehicles	36 x CH-46	36 x MV-22	96 x MV-22
	30 x CH-53	30 x CH-53	24 x New Design Heavy-Lift A/C
Sea Vehicles	2 x LHD-1	-	6 X New Design Ex War Combat ship

	1 x LHA-1	3 x LHA (Replacement)	-
	3 x LSD-49	3 x LSD-49	-
	3 x LPD-4	3 x LPD-17	3 x New Design ExWar Combat ship
	6 MPF Ships	6 MPF (Future) Ships	3 x New Design ExWar Logistics ship
	23 x LCAC	16 x Heavy-Lift LCAC	12 x Heavy-Lift LCAC
	16 x LCU	12 x LCU (Replacement)	12 x LCU (Replacement)

Significant Force Structure Differences

Areas of Analysis

The objectives of building the model using the EXTEND simulation software are to allow analysis into the following areas:

- *A Total System of Systems Analysis on the Expeditionary Warfare Architecture.* The model output provided a basis for analysis from a total system of systems perspective so as to determine the most effective force architecture to project and sustain an Expeditionary Force ashore.
- *Studies on the Interfaces and Synergies Among Ships, Aircraft And System Within An Architecture.* The analysis on the force built up ashore and the logistical sustainment cycle at the Sea Base and Iron Mountain provided valuable information on the interfaces between the ships, aircraft and system, which allowed identification of areas that are deficient or require more in-depth studies.
- *Viability of the STOM and Sea Basing Concepts.* The continuous tracking of throughput information of the various resources such as troops, vehicles and logistics supplies provides insights into the performance of the different architectures and operational concepts in terms of launching the assault force as well as sustaining it during an expeditionary operation.
- *Significant Factors in an Expeditionary Architecture.* Factors that have significant impact on the capability of an Expeditionary Force to project and sustain an operation ashore were also identified through the analysis of the model output and the use of a suitably designed DOE⁶ (Design of Experiment).

Factors Taken into Account in the Model

To allow for a meaningfully and realistic analysis of the data obtained from the models, there is a need to ensure that most, if not all, external effects affecting an expeditionary operation are taken into account in the model. The following factors are those that were taken into account in the final model coding.

- *Environmental Effects.* Effects from environmental factors such as the sea-state and weather affect the time of conducting an operation. These effects may result from having longer transit delays for ships and aircraft to longer delays in loading and unloading cargo between ships. To account for these environmental effects, flexibility was built into the models that allow the user to change the transit speed of vehicles, the loading and unloading delays and cargo capacity of a vehicle according to the prevailing sea state and weather.
- *Mine Threats.* Mines are a significant threat in an expeditionary operation and they affect the speed and maneuverability of sea craft when they are transiting in a mined area. To account for this effect

in the model, the number of sea-lanes available will limit the number of sea craft that are allowed to land at the beach at any one time.

- *Attrition/Casualty of Troops.* Attrition of troops is accounted for in the various phases of the operation and affects not only the troops but also the vehicles (such as aircraft, sea craft and land vehicles).
- *Reliability/Serviceability of Vehicles.* In the real world, vehicles are routinely scheduled for preventive maintenance and they do breakdown from time to time. In the model, this factor is taken into account to ensure that the number of vehicles that are available for operation at any one time is operationally realistic.

Design of Experiment

An equally important part of the analysis of the models outputs is a systematic, thorough and organized approach to conduct the modeling runs. The methodology adopted in the study was the Design of Experiment (DOE). DOE has become one of the most popular statistical techniques of the 1990s, as a method to maximize the knowledge gained from experimental data. Factors and their extreme values are selected and tested in mixed trials and with the use of statistical software such as the MINITAB™, individual factor contributions and their interaction with one another can be identified.

The factors that are inherent to an architecture are classified as Design factors⁷ while those that are due to external elements are classified as Noise factors⁸. The [DOE mixed trials matrix](#) is as shown on the facing page.

Analysis of Results

Several findings were concluded from the results of the modeling runs. However, only the three most significant findings will be elaborated here to show the kind of information that can be derived from the use of simulation models and Design of Experiment.

- *The Conduct Of STOM and Sea Basing.* It was found that the US Planned force architecture is capable of supporting the STOM and Sea Base concepts, although this capability is diminished significantly as the prevailing sea-state and weather deteriorates. It was also found that the performance of a Sea Base is very highly dependent on the operating environment and hence, a more robust sea-keeping and transloading capability for the ships, as well as better inclement weather handling capability for the aircraft, must be priority requirements for all future platform designs.
- *Conceptual Architecture.* The Conceptual ExWar ship was designed to exploit the air power of the USMC. With the large number of organic airlift assets, the Conceptual architecture is capable of projecting the assault forces ashore the fastest. However, the trade-off to this capability is the heavy consumption of aviation fuel from the Sea Base and the high dependence on air protection. The modeling results showed that if logistical planning is not carried out carefully, the depletion of aviation fuel would ground the fleet of aircraft at the Sea Base. In addition, highly survivable aircraft with adequate air protection is also essential, as any attrition of these aircraft will have a significant impact on the overall lift capability.
- *Logistical Sustainment.* The establishment of an Iron Mountain can best sustain a projected force ashore as it is more robust against the effects of weather on the sustainment process, although one must bear in mind the accompanying operational pause when capturing the Iron Mountain. In addition, a land-based logistical depot is also more vulnerable to enemy attacks and would require a sizable force to protect it.

Other Major Areas where Model Simulation will be Useful

The use of model simulation in the Expeditionary Warfare study demonstrated the potential of utilizing this methodology to analyze complex systems. Other major areas where model simulation will be useful are:

- *Information Systems.* With the rapid development of information technology in the civilian world and the increased utilization by the military, future warfare will be dominated less by individual weapons platforms and munitions than by real-time data processing and networking that tie forces together synergistically⁹. Indeed, there are already many warfighting concepts that are either implemented or planned that seek to exploit the information edge. Central to these concepts is a network of sensors integrated with fire control and weapons that provides a means by which data from these systems can be fused together and distributed to each element of a networked force for engagement. Some of these examples are the Cooperative Engagement Capability Concepts, the US Army Future Combat System Concept and Network Centric Warfare. However, complex information systems are often developed without systematic consideration of architectural alternatives partially because systems engineers have lacked a methodology for performing quantitative trade studies of networked systems of sensors, processors and communications systems,¹⁰ and this has often led to design failure and/or sub-optimized system.
- *Future Logistics Concepts.* Logistics affects military strategy, military strategy affects grand strategy, and grand strategy affects political outcomes.¹¹ Logistics has always been a cornerstone of a successful military campaign. With the increasing need for militaries to be more operationally responsive, rapidly deployable and tactically versatile, the conventional logistics support concept will need to change. Future logistics concepts seek to reduce both the proverbial logistics "footprint" and decrease the logistics "tail" to enable "highly operationally manoeuvrable" forces.¹² However, logistics support concepts are often very complex systems, involving the flow of enormous amount of items from one point to another within the system while competing for the use of scarce resources. The knowledge of the behaviour of individual elements within the system and their effects on one another would provide guidance to planners and enable them to make more informed trade studies where necessary.
- *Operational Planning Tool.* In addition to being used as a systems design-planning tool, there is immense potential in using model simulations for operational planning. With the input of suitable operational data (such as force structure, attrition and consumption levels), a military planner can make use of model simulations to test and validate his force plans, which would allow him to identify areas of weaknesses within the operational plan.

Conclusion

The modeling project undertaken by the five SAF officers and the NPS faculty members on Expeditionary Warfare is a good example of using model simulations to analyze complex systems. The results and conclusions drawn from the simulations would not have been possible with any other conventional analysis methods. As military systems become more intricately linked and complex, there is a need for new methodologies to test and verify the viability and performance of these system concepts. Simulation modeling is one such method. The knowledge that can be obtained from these simulations will provide valuable knowledge and insights into the characteristics and behaviour of the overall system as well as the interactions between the component systems.

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Endnotes

- 1. Speech by Dr Tony Tan, Deputy Prime Minister and Minister for Defence, at the Launch of Defending Singapore in the 21ST Century on 15 Feb 2000 at The SAFTI Military Institute**
- 2. Kapil Kak, Dy. Director, IDSA, Apr 2000, Revolution in Military Affairs - An Appraisal**
- 3. The full report of the study can be found at the following website: <http://www.nps.navy.mil/sea/exwar/>**
- 4. This is the planned US force structure in year 2015-2020, taking into consideration the existing US force plans.**
- 5. EXTENDTM is a software program that supports developing dynamic simulation models of complex processes. An EXTENDTM model is composed of components, or blocks, and their interconnections, which allows simulation of large, complex processes involving a wide variety of platforms and materials.**
- 6. For more details, see R.A. Fisher. 1951, *Design of Experiment***
- 7. The three Design factors were the three architectures to be analyzed, the replenishment option of either the High Speed Vessel (HSV) or Light Medium Speed Roll On/Off (LMSR) ships and the distance of the expeditionary force from the objective when launching the operation.**
- 8. The four Noise factors used were attrition, weather, mine threat level and the consumption rate of logistics resource such as food, ammunition and fuel.**
- 9. Michael O'Hanlon, 2000, *Technological Change and the Future of Warfare*, Pg 12**
- 10. John S. Osmundson, July, 2000, *A Systems Engineering Methodology for Information Systems, Systems Engineering*, Vol. 3, No. 2, Pg 2**
- 11. Douglas Menarchik, 1993, *Powerlift Getting to Desert Storm: Strategic Transportation and Strategy in the New World Order*, Pg xiv.**
- 12. Brandt et al, Aug 1996, *Dynamic Response Logistics: Changing Environments, Technologies, And Processes*, Pg 38**

A Learning Army – Translating Theory into Practice

by LTA Benjamin Cher Tau Wei

The immense changes in the social and economic environments caused by technology and globalization have compelled organizations worldwide to make overwhelming changes in their purpose, strategies and structures in order to adapt, survive and succeed in this new century. Just like a living organism that learns to adapt itself to its new environment, organizations today must learn, and learn fast, in order to adapt to rapid environmental changes or they simply will vanish.

Likewise, the Army will also need to learn continually, to meet the demands of the 21st century. The 1997 Army Planning Seminar concluded that the Army has reached an apex and to scale greater heights would necessitate its evolution into a "learning, lean and intelligent army".¹ Apart from the need to adapt and survive, the Singapore Armed Forces (SAF) has perhaps reached a level of organizational maturity where it can now begin to address the higher levels of Abraham Maslow's hierarchy of human needs: self respect and self actualization.² The SAF is now focusing more than ever on how to develop the thinking and learning faculties of its people to their full potential, so that in its development as a learning organization, individual needs for learning and personal growth will be actualized.

A Learning Army, therefore, will be an attractive workplace where unique and fulfilling learning opportunities present incentives for people to stay committed to the Army. This paper explores the theoretical basis for such a vision, and provides a practical framework for a Learning Army.

Theoretical Framework

There exists in current literature a plethora of theoretical tools and methodologies about the learning organization. To translate the theory into practice, however, would not only require an intimate knowledge of the particular organization, but also a sense of empathy for people who might be averse to change. Moreover, management scholars have long espoused the need for greater precision in describing learning organizations, but their academic models are far removed from the reality of day-to-day management.³ No stand-alone theory, therefore, will be sufficient to provide an overarching framework for a specific organization, but an understanding of the prevalent theories would move us a step closer to sculpting a Learning Army.

Learning Organization as a Community of Commitment

"Why do we confront learning opportunities with fear rather than wonder? Why do we derive our self-esteem from knowing as opposed to learning? Why do we criticize before we even understand? Why do we create controlling bureaucracies when we attempt to form visionary enterprises?" These are some of the insight-generating questions that Fred Kofman and Peter Senge of MIT ask in their essay, "Communities of Commitment: The Heart of Learning Organizations".⁴

In his monumental work *The Fifth Discipline*, Peter Senge, a leading proponent of learning organizations, states that a learning organization is "a group of people, a community, continually enhancing their capacity to create what they want to create."⁵ He says that learning organizations are about building "communities of commitment", teams of like-minded individuals devoted to expanding and renewing the capacity of organizations to achieve their visions.

Senge believes a learning organization must be grounded in three foundations: first, a culture based on transcendent human values of love, wonder, humility and compassion; second, a set of practices for

generative conversation and coordinated action; and third, a capacity to see and work with the flow of life as a system.⁶

He further advocates five disciplines, namely personal mastery, mental models, building shared vision, team learning, and systems thinking. In essence, the basis of these disciplines is a reexamination of the deeply ingrained assumptions, generalizations and fragmented worldviews that we have come to accept in our thinking. By suspending our assumptions and denying our egos, we can begin to use systems thinking as a framework for seeing the learning organization as a pattern of interrelationships rather than things.⁷

Senge's idea of "communities of commitment" is perhaps similar to an "organization of learners", which Saint-Onge explains as "a collection of individuals who take ownership for their own development and learning on a self-directed basis."⁸ Self-directed learning, according to Malcolm Knowles, is "that process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating goals, identifying human and material resources for learning, choosing and implementing learning strategies, and learning outcomes."⁹

Learning Organization as an Evolving Info-Structure

Yet another view of a learning organization offered by David A. Garvin at Harvard Business School, is that of an entity "skilled at creating, acquiring, and transferring knowledge, and at modifying its behavior to reflect new knowledge and insights."¹⁰

He further elaborates that learning organizations are skilled at five main activities: systematic problem solving, experimentation with new approaches, learning from experiences and best practices of others, and transferring knowledge quickly and efficiently throughout the organization.¹¹ The learning organization in this case can perhaps be viewed as an ever-changing information structure, or info-structure, comprising its culture, experience and knowledge that adapt according to learning needs.

The info-structure has to be robust to process current and future information. It must be able to capture and store new lessons learnt, and to retrieve the experiences from its knowledge repositories for timely application. A higher-order function of this info-structure would lie in its ability to generate possible scenarios from its knowledge repositories for fore learning. This implies that the system would be able to work out a feasible strategy given the details of a possible scenario, much similar to neural network systems in the field of artificial intelligence. Since the theory relies much upon mathematical and scientific methods, technology will be an essential tool to enable this realization.

A corollary of building this info-structure for the Army is a restructuring of rigid hierarchies. The network and database will replace the depth of knowledge a multi-tiered hierarchy offers with the breadth of knowledge that is the sum of employees' collective experience. The resulting organization should have a streamlined, boundaryless structure that maximizes contact, information flow and collaboration within and outside the organization.

Critique, Comparison and a Guiding Framework

In view of the above-mentioned theories, a comparison is now made so that a guiding theoretical framework for a learning army can be forged.

Barriers to learning caused by human weaknesses might be more pronounced in the army because a military outfit is usually more effective in war if swift obedience to instruction takes precedence over generative discussions that promote learning. Senge's "community of learning" approach, then, offers a refreshing perspective on improving learning in the Army since it deals with psychological aspects of learning. However, structural rigidities and regimentation in the Army might pose significant barriers to this approach.

Compared to Senge, Garvin has adopted a more structural approach. His theory gives clearer guidelines for practice and is filled with operational advice rather than high aspirations. However, structural improvements are only as good as the enthusiasm for learning, so there are limitations to this theory as well.

The guiding theoretical framework, then, would be to find a suitable trade-off between Senge's and Garvin's approaches. An overemphasis in one domain could distort the ability of the organization to integrate learning for maximum impact. Both structural and human barriers to learning must be tackled with a combination of strategies from both domains.

Current Barriers, Initiatives and Limitations

Over the last three decades, the Army has acquired certain organizational characteristics that impede learning, some of which still exist today. In its development as a military establishment, structural, technological and cultural barriers to its learning capabilities must be removed in the process of organizational learning. Permanent Secretary for Defence, Mr Peter Ho, recently describes the main influence governing overall development of the SAF as "deconstruction", a management term that refers to a process of examining and redesigning an organization.¹² Current initiatives to achieve this and their limitations are described along with the barriers they seek to eradicate.

Structural Barriers and Initiatives

The hierarchical nature of the Army poses special challenges toward organizational learning. Knowledge and work tends to be compartmentalized and confined within functional and specialized areas. In addition, any innovative initiatives at the ground level should be reflected upstream through the proper chain of command. However, any changes in action, decision or policy can percolate downstream without so much respect for hierarchy.

Consequently, information tends to flow upstream through narrow conduits and diffuse in sparing measure horizontally because boundaries are not porous. Phil Evans and Thomas Wurster described this as a trade-off between richness and reach, where richness is the quality of information and reach is the number of people who participate in the sharing of such information.¹³ In line with Garvin's theory, the info-structure of the army needs to be streamlined and made boundaryless.

The Ministry of Defence (MINDEF) has recognized the tremendous learning potential that can be tapped by strengthening richness and extending reach. To create porous boundaries, MINDEF has already launched the "miw.com.sg" portal ("miw" stands for "My Internet World") and set up MINDEF "dot com" in April 2001, an Internet-based service that aims to connect people and entities horizontally and vertically.¹⁴ This involves a rethink on organization, care of personnel and how procurement is undertaken. Governance mechanisms are reexamined and irrelevant rules and regulations are subject to "creative destruction", in Joseph Schumpeter's fashion.¹⁵ There is also the Intranet, a portal designed for internal information exchange so that personnel from different services can learn about one another.

Mr Peter Ho says that the senior people in MINDEF and the SAF now have a more comprehensive grasp of the needed framework while their subordinates have more detailed knowledge in their respective departments. He adds, "Organizational effectiveness also depends critically on people at all levels understanding how their roles fit in with the larger aims and objectives of the organization. This means not micro-managing, but instead getting people from different parts of the organization to understand and internalize the higher level thinking on policy and strategy."¹⁶

Therein lies the limitation of structural improvements: even though reach and richness may be achieved, the thinking abilities of the people would need to be honed. Structurally, much more can still be done. With the imminent rise of wireless applications and intelligent knowledge-management systems that can augment MINDEF "dot com", the army's learning capabilities will be technologically enhanced.

The Role and Limitations of Technology

It is difficult to think how technology that should enable learning would pose a barrier to learning. Perhaps the main reasons might be technological limitations, an over-reliance on technology and a lack of training in new technology.

Currently, technology has been instrumental in building SAF's learning and fighting capabilities. Multimedia learning tools are employed at the Officer Cadet School in SAFTI. Within MINDEF and the SAF, a host of innovative solutions and projects have been generated over the years, including the SAR 21 assault rifle and the underground ammo facility that saved the country more than 300ha or \$5 billion worth of land.¹⁷ Soldiers also undergo "operator-maintenance" training so that they are comfortable with using high-tech systems in the field. In addition, a recent survey of national servicemen shows a technologically savvy bunch with 86% owning a handphone, 70% owning a computer and 70% having access to Internet or email.¹⁸

From statistical data, it might imply that a lack of technology would pose a great barrier to learning. Clayton Christensen, however, argues that technology has diminishing returns and is beset with operational problems. Technological limitations are illustrated by the failure of increased bandwidth to live up to its promises of improving information processing capabilities, as well as the difficulty of writing algorithms for these processing capabilities. Commercial off-the-shelf technologies, however advanced, can be extremely difficult to integrate into the modern military infrastructure.¹⁹ In *Command in War*, Martin Van Creveld concludes that "since any technology is by definition subject to limitations, historical advances in command have often resulted less from any technological superiority that one side had over the other than from the ability to recognize those limitations and to discover ways improvements in training, doctrine, and organization of going around them."²⁰ He gave examples of how two great historical war generals, Napoleon and Moltke, learnt how to command effectively despite the limitations caused by the lack of technology.

Technology can be a great facilitator of learning, but because of its limitations, the army should also pay close attention to its doctrine and training to ensure that reliance on technology does not become a snare to the organization.

A Paradoxical Learning Culture

Not long ago, organizational learning professionals were invited to share their work with the army's senior leadership during the 2000 Army Planning Seminar. Since then, Learning Organizations (LO) tools based on Senge's Five Disciplines have been imparted to various groups of leaders. Of creating a learning army, many cited the "hierarchical nature" of the army, the "mindset" of people as well as the "lack of time and energy due to hectic training schedules" as some of the main challenges.²¹

In assessing an organization's culture for learning, Stephanie Ryan, an organizational learning consultant, looks for the ability and freedom to inquire within the environment. What she often finds is "a glaring void of inquiry and a virtual avalanche of advocacy in meetings, memos and other forms of communication".²²

The lack of inquiry has been attributed to several reasons, notably the universal human fear of looking foolish when mistakes are made in the process of learning. Many people have developed defences that have become second nature, like working out problems in isolation and never saying, "I don't know". Chris Argyris calls this "skilled incompetence," since we become skilful at protecting ourselves from the threat and pain that come with learning, but also remaining incompetent and blinded to our incompetence.²³ This has engendered a paradoxical learning culture for our times, that Peter Senge has described: "Even when we claim we want to learn, we normally mean that we want to acquire some new tool or understanding. When we see that to learn, we must be willing to look foolish, to let another teach us, learning doesn't look so good anymore."²⁴

In the Army, there is also a predisposition toward an unquestioning mindset, attributed perhaps to a latent fear that social stigmas would be permanently attached to those who ask too much. It is a common observation among servicemen that individuals who question much get singled out easily. The psychological punishment for these individuals would include being labelled as "troublemaker" by peers or "idiot" when the majority considers the question pointless.

Why would the average serviceman, for example, be concerned with creating a learning army? His typical concerns are mostly personal, and without loss of generality, most full-time national servicemen are looking forward more to their operationally ready date (ORD) than to a vision of a Learning Army. They are usually more preoccupied with training and responsibilities than practising the art of learning in daily affairs. There is also a type who may be disillusioned with the army because he does not think he is learning anything, or even if he is, the knowledge is not useful in future since he is not a regular.

In addition to these cultural blocks, there exists a "fast-food" culture in not just the army, but in most developed countries, which short-circuits the learning process. People want results and they want it "now". This mentality has rendered learning curves like steep precipices. For example, at present, most Principal Staff Officers (PSOs) are posted into units untrained. A lot of on-the-job learning takes place and to meet the demands of hectic training schedules, administrative mistakes with dire consequences are sometimes committed.

A Practical Framework

In light of the aforementioned challenges, a two-pronged approach to deal with them is proposed:

Building an Evolving Info-Structure: Knowledge Management Systems

Knowledge can be defined as a body of information, principles, and experiences to actively guide task execution and management, decision-making and problem solving.²⁵ Thomas Stewart, in his classic *Intellectual Capital: The New Wealth of Organizations*, writes, "Simply put, knowledge has become more important for organizations than financial resources, market position, technology, or any other company asset."²⁶ The way in which organizations leverage technology to manage knowledge is emerging as the single most important discriminator between success and failure. Nonaka and Takeuchi confidently predict in *The Knowledge-Creating Company* that a company's ability to create, store and disseminate knowledge will be absolutely crucial for gaining a competitive advantage over its competitors.²⁷

The army is still in its infancy in building knowledge management systems. A full-scale information-technology (IT) enabled knowledge management system would be a worthwhile vision as experiences and mistakes could be stored and retrieved quickly in future so that valuable resources would not be unnecessarily wasted for re-learning. Brigadier-General Jimmy Khoo, then Director of Joint Operations and Planning Directorate (DJOPD) in MINDEF, explains, "We need to put in place a system to store, organize, distribute and share the recorded knowledge of MINDEF and the SAF. Without a proper system, this priceless knowledge accumulated through the years will be permanently lost. We'll become the poorer for it."²⁸

At present, the electronic document management system pioneered by MINDEF with the assistance of the Defence Science and Technology Agency (DSTA) resembles such a vision. In essence, it takes care of the management of documents throughout their lifecycle, from inception, through creation, review, approval, storage, dissemination and retrieval all the way to their archival. The system stores electronic documents in a central repository that also automates the workflow, hence obviating the hardcopy folders stored in filing cabinets.²⁹

To this end, a cohesive knowledge-management system for a learning army is proposed. It involves five stages as knowledge transitions from source to use: 1) acquisition, 2) storage and data mining, 3) analysis, 4) sharing and dissemination, and 5) application and validation.

- **Knowledge Acquisition**

A common complaint among workers is that so much of their knowledge is never tapped by the organization, what Nonaka calls tacit knowledge.³⁰ Tacit sources include the employee's expertise, memories, beliefs and assumptions, all of which can add value to the organization. In this respect, the army can also begin to acquire such information that will expand its memory base and enhance its learning expertise. In addition, explicit knowledge from external sources like other organizations should also be acquired as they help create learning value.

- **Knowledge Storage**

Deciding what knowledge to store is perhaps more painstaking than the storage itself. With the deluge of information, the learning army must sieve and prioritize the information to be converted to knowledge in its repositories. This may include unique capabilities of each employee, lessons learnt from past projects and military publications. The knowledge stored should be based on the learning needs of staff, organizational goals for continuous improvement, and user expertise. It should also be updated regularly so that it remains accurate and valid.

- **Knowledge Analysis and Data Mining**

Knowledge only makes sense to the organization when it is analyzed. The latest development in analytical tools is data mining, which enables organizations to find meaning in their data. Data mining methods include decision trees, nonlinear regression and classification methods. This has benefited many organizations, including the biggest US retailer, Wal-Mart, who uses a data warehouse to handle data on customer buying patterns from its 2 900 stores.³¹ Similarly, the Army can benefit from this method. For instance, it can look for patterns from data regarding training incidents to prognosticate similar future circumstances so that better prevention measures can be taken.

- **Knowledge Sharing and Dissemination**

Knowledge needs to be disseminated accurately and quickly throughout the organization to where it is needed. The means to achieve this might consist of a web-like structure with a central knowledge base extending into clusters of databases that facilitate the wide-scale transfer of knowledge. Several companies have already made great strides in developing a knowledge sharing system. Accenture, for instance, has a system called Knowledge Xchange that allows over 17 000 professionals in 47 countries to utilize the system daily to access and share knowledge bases.³² For the army, MINDEF "dot com" is a fledgling knowledge dissemination system that will develop further in future.

- **Knowledge Application and Validation**

Imagine a wartime scenario in the operations room where commanders are planning an attack. They input real-time factors and limitations into a computer that is connected to a knowledge management system. The computer then outputs a real-time strategy that the commanders can consider in their decision-making. Such a system will support the army in applying the right knowledge at the right time. The ability of a company to provide customer service through diagnosis and troubleshooting is also a good example of knowledge application and validation, as evidenced by Hewlett-Packard's global electronic network.³³

- **An IT Infrastructure**

To this end, a networked IT platform should first be installed across the organization to support the knowledge systems. This has already been achieved through MINDEF "dot com". The next stage would be to create enterprise-wide knowledge repositories. Then, with the assistance of electronic systems, all operations should be automated within the organization. Finally, centres of expertise that would be responsible for sourcing, analyzing and disseminating the knowledge could be formed.

In essence, by leveraging information technology to transform the knowledge management process, the Army can advance toward Garvin's vision of a learning organization. However, as mentioned before, technology is merely a powerful enabler of better organization. The thrust toward accelerating IT should also be accompanied by a thrust toward nurturing learning skills in people.

Building Communities of Commitment: Regenerating a Learning Culture

In the SAF, self-directed learning is manifested as continuing education. The Personnel Development and Services Office (PDSO) of MINDEF has been corroborating such learning with various programmes like QUEST, Management Development, language and even diploma courses. Although such courses may train servicemen to perform current jobs better, they do not address the cultural blocks to learning in the army. How do we break these cultural norms that inhibit our thinking?

First and foremost, there must be a greater commitment on the part of senior and middle leadership toward creating a learning environment where mistakes can be tolerated and experimentation is encouraged. This does not mean soldiers should be encouraged to fail so that they can learn. Rather, in the pursuit of training standards and results, soldiers should not be penalized for trying new methods that may risk a higher chance of failure.

To this end, the leaders play a pivotal role in paving the way for a learning culture. The thinking patterns of the leaders should be corrected and they should be given proper training to build the skills required to create a learning environment. Peter Senge states that learning organizations are built by communities of servant leaders. They are "people who lead because they chose to serve, both to serve one another and to serve a higher purpose."³⁴ Therefore, when the leaders in the organization show a genuine concern for learning and change their behaviour to reflect this, the men will be more likely to follow and there will be positive feedback reinforcing organizational learning. Only with a supportive learning environment will the average serviceman be more extrinsically motivated to learn.

Second, we need to develop the skill of asking questions. Too often in the army, questions asked feel like an attack. Consider "What does our low morale tell us about the way things are run around here?" and "Why are you so unmotivated? Where is your morale?" Questions that carry blame or judgment erect defences in the listeners. Furthermore, questions are often not asked for lack of courage. Stephanie Ryan believes that questions that carry the spirit of curiosity behind them unleash the desire for learning. She adds, "The courage to ask these kinds of questions lies with the willingness to be vulnerable, to admit to another in asking what 'I don't know.' The ability to leave these questions unanswered is the capacity to live with the unknown and to live in that vulnerable space until new meaning and understanding emerges."³⁵

In view of this, perhaps the educational system should begin to address this. Teachers and instructors can reward good questions rather than good answers. Interactive class discussions geared at developing questioning skills can be formed. This is a life skill that is fundamental to how we learn. By developing good habits of asking good questions with good intents, individual and organizational thinking skills will be sharpened and the appetite for learning will be whet.

Third, to cope with the steep learning curves faced by new appointees in the army, perhaps units could autonomously devise induction programmes to train them first before letting them into the arena. Daniel H.

Kim, an organizational consultant, recommends "learning laboratories" that have "safe-failing spaces" and in-built opportunities for making mistakes.³⁶ Training programmes and military schools are hence essential as they are the "learning laboratories" where experimentation with alternative policies and testing of assumptions take place.

Last but not least, our people need to be imbued with a passion for learning and an understanding of the mechanisms of learning. The education system teaches us what to learn more than how to learn. Although there has been a thrust over the years toward creative thinking, students would need more assurance and direction from the system that a growing emphasis is on the learning and thinking process and not just on the results.

Measuring Our Progress

Evaluation methodologies for building learning organizations continue to elude many training professionals. What can and should be measured? How do we measure, say, the learning ability of an organization? What are the success indicators?

Even though such measurements may be difficult, it is critical for a learning organization to assess its performance so that it can weed out poor learning practices and galvanize good learning methodologies. It also serves as a means of accountability to various stakeholders who might have invested in different ways to help the organization achieve its vision. It ascertains, ultimately, whether gains have in fact been made.

Structurally, an indicator of success would perhaps be the efficacy of the knowledge management system to retrieve and process information. The measurements in this case would be more tangible. However, cultural impact would be difficult to measure as the criteria for determining, for instance, good questioning skills, would be more subjective. An important insight can perhaps be gleaned from the non-profit world where social impact is exactly what needs to be measured. Seth Barad, a partner with the BridgeSpan Group, elucidates their evaluation philosophy, "the way to assess a nonprofit's performance is not to measure the outcomes against its mission, but against its short-term operating goals, such that the fulfillment of those goals would ultimately bring the nonprofit one step nearer its mission."³⁷

By a similar vein, a learning army must develop specific, actionable, and most critically, measurable goals to bridge the gap between lofty aspirations and their near-term operating objectives. Specific measurable goals to determine cultural impact could include raising the percentage of servicemen who use MINDEF's Internet-based services, increasing the number of Work Improvement Teams (WITS) suggestions generated per month and eliciting more comments related to learning initiatives in the army.

However, the organization must be careful not to measure progress as to produce the administrative equivalent of Heisenberg's Uncertainty Law in physics, which says that subatomic particles can never be measured because the very attempt to measure them will cause them to change. Exercising supervision that is close enough, yet not so close as to act as a brake, is a cardinal principle of good management.³⁸ To this end, the different units in the army should be granted a certain degree of autonomy as part of the process toward a learning organization. Best practices can be shared through the Intranet and sub-unit commanders can help monitor progress.

Finally, acknowledging the difficulties in measuring the progress of a learning organization is a healthy place to begin. This, after all, is also a learning process.

Conclusion

In view of the challenges in crafting a learning army, two main approaches based upon Garvin's and Senge's theories have been proposed: first, to develop a robust knowledge management system that will build the Army's learning capacity; second, to regenerate the learning culture through leadership and education.

It should be noted that in the process of development, one is looking for reasonable trade-offs, as not every approach would be favoured. This is to reflect the organizational dilemma described by James Q. Wilson: an organization designed to come up with many innovative proposals is unlikely to muster the consensus and political will to implement the initiatives which, by definition, must favour some interest groups and displace others.³⁹ A balance between the two approaches should thus be sought.

Notwithstanding the merits of a process-oriented learning organization, it should be admonished that what is learnt is also significant. A soldier should not kill innocent civilians after learning how to fire a weapon.

To sum up, building a learning army shall always be an ongoing endeavour. It is not the sense of achieving, but a sense of becoming, of constantly arriving, that shall define the building process.

"We shall not cease from exploration

And the end of all our exploring

Will be to arrive where we started

And know the place for the first time."

T.S.Eliot

This essay won an Outstanding Award in the 4th COA Essay Competition 2001.

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The Inner Game of Building a Learning Army

by MAJ Andy Ong Kian Woei

*"In 1965, when Singapore became an independent nation, it had virtually nothing in the way of armed forces to defend itself. By 1990, the Singapore Armed Forces (SAF) had grown into a respected and professional force operating modern defence systems that was capable of defending the territorial integrity and independence of the state."*¹

Military Technology, 1990

In the 21st century, in order to continue to encourage foreign investments and an influx of foreign talent to sustain economic growth and stability in Singapore, a strong army as part of the SAF is necessary to deter threats that may undermine Singapore's stability. Looking back over the last three and a half decades, the Army has grown from two infantry battalions into a respected and professional combined arms fighting force operating modern equipment capable of defending the sovereignty of Singapore. This rapid transformation into a modern fighting force is a result of our ability to learn, develop and adapt across the various aspects of the military, from doctrine to leadership. We started by learning from other armies, such as the Israelis, and adapted their doctrines and tactics to build our defence force. As we matured over the years, we began to evolve and develop our own capabilities to meet our unique operational requirements. This achievement can be attributed to almost a single factor – our people.² This was reinforced again in the recent C4I Asia Conference 2002 by our Chief Defence Scientist, Prof Lui Pao Chuen, who said that we can have the most advanced hardware but the most important ingredient in making all these work is still the "heartware".

*"Our economy is entering a new phase of growth, one driven by knowledge, technology, innovation and regional growth. It is a future which holds tremendous promise for our people if we prepare them well through proper education and training."*³

Mr Goh Chok Tong

As we embark on the 21st century, the environment is undergoing a paradigm shift towards a knowledge-based economy. This is made possible with the proliferation of Information Technology and the Internet that has enabled people from all over the world to share information and knowledge. Organisational learning has become particularly relevant and given increasing prominence over the last decade as organisations moved from the industrial (2nd wave) to knowledge (3rd wave) economy.

*"We could not risk betting our survival by depending on others to defend us. We had instituted National Service, and were building up the Singapore Armed Forces (SAF). But the SAF could never overwhelm an opponent by numbers. It (SAF) would have to fight smart."*⁴

BG(NS) Lee Hsien Loong

As concluded in the 1997 Army Planning Seminar, the Army had reached its pinnacle.⁵ In this age of knowledge, the dependence on defence technologies or numbers alone to fight a battle may not allow the Army to have a significant advantage in the battlefield. In order for the Army to scale greater heights, it is necessary for the Army to evolve into a Learning Army to tap the true potential of its people. The future Army will demand constant upgrading of the people with new skills and expertise to fully exploit the hardware. Thinking soldiers with the right knowledge and skills to leverage on technologies and knowing how to use it creatively, will provide the Army with a significant edge over her adversaries and make the difference.

In her efforts to embrace the knowledge economy, the Army has embarked on a journey to evolve into a Learning Army. In the past few years, the Army has been adopting Learning Organisation (LO) core capabilities and disciplines advocated by the *Society for Organisational Learning* and Peter Senge's *The Fifth Discipline* to promote organisational learning at all levels. It is important to understand that a learning organisation is not about "more training". While training does help develop certain types of skill, a learning organisation involves the development of higher levels of knowledge and skills. It also includes developing the desired working environment and the kind of work that individuals truly aspire to have in order to bring out their individual inner potentials. Whilst we have identified the need to bring out the individual's potential as well as the theories that are needed to evolve into a Learning Army, have we really understood how to go about in the evolution and its implications?

This paper will be organised into five main parts:

- A review is done to examine what the Army has been doing on learning and what did not go so well.
- Using the Inner Game theory by Timothy Gallwey, an attempt is made to redefine work and how it can contribute to building a Learning Army.
- With the findings of the Inner Game theory, the foundations required of a Learning Organisation are discussed.
- The learning infrastructure that has been or needs to be put in place to facilitate learning is examined and recommendations for improvements made.
- Last but not least, how the desired cultural change of the Army can stay relevant to the nation is briefly discussed.

Has the Army been Learning? A Review

"Has the Army not been learning and hence do we really need to invest anymore in this area?" is the question that often lingers in the minds of many today. This can be attributed to the perception of the Army as a modern and capable fighting force that has attained much achievement over the past three and a half-decades. Undoubtedly, reviewing the progress of the Army's build-up indicates that the Army is forward-looking, is sensitive to the changing environment and is also able to respond with bold initiatives and swift implementations. The importance of learning in the Army is not new as shown by her ability to experiment with new approaches, learned from own and others' experiences, from past history and from the practices of others. This is reinforced by the fact that many personnel were sent to attend overseas military courses in the United States, Canada, Australia, Germany, France, India and United Kingdom to learn from them. Other examples included the Army's Safety learning experience in 1996/1997 that truly demonstrated the Army's ability to learn and adapt to changes, the involvement in Peace Support Operations (PSOs) and the recent Low Intensity Conflict (LIC) operations to manage internal security after the 911 incident. In this sense, the Army has been learning, with the levels of learning progressing from reactive learning to adaptive learning at the organisational level.

However, learning at the individual level has largely been confined to individual training in well-defined settings and under the ambit of education and training. The sole purpose is for an individual to acquire knowledge and skills so that he can perform his job. A rifleman is trained to fire his rifle and charge a hill as part of a section under the umbrella of a platoon. A signaller is trained to operate the radio set or data terminal sufficiently to enable his commander to communicate with the distant party. There is no systemic overview by the men to understand the importance of his role in contributing to a larger fighting force. This is due to the centralised leadership or command that is "top-heavy" and eventually breeding leaders and men who are "reactors rather than thinkers". This is especially so in time to come when technology goes right down to the level of the soldier and they let their superiors and computers do the thinking for them. This is amplified by the Army's zero-defect mentality where the tolerance for mistakes is almost zero. The

commander's "loss of face" and the fear that his subordinates' mistakes will make his unit look bad and thus jeopardise his own career is a contributory factor that inhibits learning by the individual.⁶

Our present assessment system of a unit's performance and our individual performance appraisal system (ranking) further handicap the Army's learning ability. It is too result-oriented, with focus on the Individual Physical Proficiency Test (IPPT), trainfire programme and Battalion Proficiency Test (BPT) held by the Army Training Evaluation Centre (ATEC) because of the ill-founded belief that these results are an objective indication of performance. What this causes is a mad scramble for good results on paper for important tests. This compromises not only integrity but also the overall training standards. For example, preparations for BPT evaluations focus on fulfilling the scores on the ATEC checklist *vis-à-vis* the intangibles like minor tactics.⁷ Even the objective of using the Risk Assessment Matrix (RAM) as a safety enhancing tool has eroded somewhat. Instead of using RAMs to help check on safety, standard RAM templates are pre-prepared for the conduct of ranges merely to meet the requirements of General Staff Inspectorate (GSI) safety inspection checklist for Best Unit Competition (BUC). The spirit of the Productivity In Daily Effort (PRIDE) movement in the case of Unit Suggestions Management System (USMS) and Work Improvement Teams (WITs) has also declined in certain instances merely to meet the quotas of individuals rather than in the spirit of productivity. For example, in the virtual absence of real problems or areas seeking improvement, a work improvement team may frantically come up with some problems just to present the solutions in an impressive report in order to chalk up one achievement after another.⁸ This culture of individualism is slowly creeping into the Army. The emphasis on performance-orientedness is also causing a resistance to share knowledge for fear that ideas will be "stolen" and the credit given to others. Soldiers now think of self-interest as compared to organisational interest. Work has become passing up a beautiful record card to show to top management. This culture has also caused soldiers to lose focus and a sense of purpose with the organisation and the need to serve National Service. How then can we prevent this? The obvious answer is to change that culture to evolve into a Learning Army so that the full potential of her human resource can be harnessed. But the question is how do we do it?

The Inner Game of a Learning Army

*"There is always an inner game being played in your mind no matter what outer game you are playing. How aware you are of this game can make the difference between success and failure in the outer game."*⁹

Timothy Gallwey

What is the Inner Game?

The concept of the Inner Game was developed by Timothy Gallwey as a way of helping people to achieve excellence in various sports, music, business, management training and work by bring out their inner potential. In Gallwey's concept, it was stated that in every human endeavour there are two arenas of engagement: the outer and the inner. The outer game is played on an external arena to overcome external obstacles to reach an external goal. The inner game takes place within the mind of the player and is played against such obstacles as fear, self-doubt, lapses in focus and limiting concepts or assumptions. The inner game is played to overcome the self-imposed obstacles that prevent an individual or team from accessing their full potential. In simple terms, the game can be summarised in a formula:

Performance (P) = Potential (p) Interference (i)

Redefining work

*"Knowledge is different from all other resources. It makes itself constantly obsolete, so that today's advanced knowledge is tomorrow's ignorance. And the knowledge that matters is subject to rapid and abrupt shifts - from pharmacology to genetics in the health care industry, for example, or from PCs to the Internet in the computer industry. The productivity of knowledge and knowledge worker will not be the only competitive factor in the world economy. It is, however, likely to become the decisive factor."*¹⁰

Peter Drucker, author of *Post-Capitalist Society*

Most people define work almost exclusively in terms of the external results produced by work. To them, work is about doing and tends to be defined solely in terms of the results. The mental model that we have is that work is work. The world is transforming from the second wave of the industrial economy into the third wave of the knowledge economy. The time has come where learning is a real component of work and not merely a chance by-product. The people in this era are often termed as the 'Knowledge Worker' where work is inextricably linked with one's ability to learn. For the knowledge worker, merely getting "the job done" is a waste of time unless "know-how" has been increased in the process. The old definition of work is defined as taking what you already knew and using it to produce results. The new definition of work is a process of growing your capabilities while in the process of producing results in order to be better able to produce future results.

Timothy Gallwey redefines work as Performance, Enjoyment and Learning. Each has an intrinsic relation to the other two. The model is described using **Figure 1**. The ultimate idea is to achieve the full surface area under the entire triangle, i.e. a balance of Performance, Enjoyment and Learning. While focusing on improving Performance alone, the increment is only along axis **a** and the surface area is only in the thickness of axis **a**. But if we move on all three axes, the area is the whole triangle.

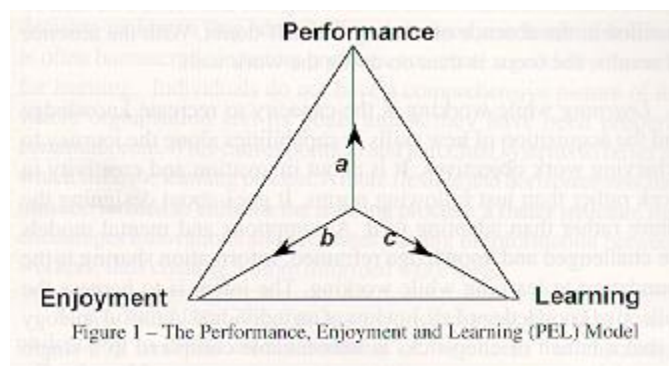


Figure 1 The Performance, Enjoyment and Learning (PEL) Model

Applying the PEL Model to Build the Learning Army

Result-orientedness or performance focus is necessary to keep the Army at the forefront. As discussed earlier, while technology plays an important role in enhancing the capability of the Army, it is ultimately its people that make the difference. This is especially so when our Army is a "Citizen Army", comprising mainly of National Service men (NSmen). Thus in order to bring about the future potential of the individual, both active and NS, we have to redefine work and ensure that our soldiers, while working to achieve performance, also learn and enjoy the work they do. In doing so, it will bring out the true potential of every individual. The key in applying the PEL model is really to focus on the *Enjoyment* and *Learning process vis-à-vis* the *Performance* leg. The intention is really to minimise the interference to each and every individual, thus ultimately achieving the true Potential or Performance using the formula $P=p-i$. Remember that interference comes in many forms such as the anxiety to do well or fear of failure.

Enjoyment in work for the Army emphasises on the journey to achieve goals or objectives. The key here is the process that each individual has to go through to achieve that end. The result in this case is not important. This will help to remove the obsession for success and the fear of failure. A feeling of confidence can then be instilled in the absence of anxiety and self-doubt. With the absence of results, the focus is then on doing the work well.

Learning while working is the capacity to recreate knowledge and the acquisition of new skills or capabilities along the journey to achieving work objectives. It is about innovation and creativity in work rather than just following norms. It goes about designing the future rather than adapting to it. Assumptions and mental

models are challenged and knowledge reframed. Information sharing is the foundation to learning while working. The intent is to harness the collective knowledge of all, not just of an individual. A useful analogy is that a bunch of chopsticks is unbreakable compared to a single chopstick.

Foundations of a Learning Army

The PEL model has redefined the meaning of work and its contribution to a Learning Army. In order to embark on this journey, a solid foundation has to be put in place for it to succeed.

Awareness

The Army must be aware that learning is necessary before it can be transformed into a Learning Army. Awareness must take place at all levels and not just at the management level. Remember: it is ultimately the soldiers on the ground who decide the outcome of warfare. By creating awareness at all levels, we are in effect setting a shared vision for all to follow. Once all levels have accepted the need for change, the appropriate atmosphere required for change will be initialised. People will be more receptive to the new ideas and will promote the exchange of information and knowledge. Management is then responsible to enhance this environment to further promote learning.

Environment

The Army is very much a hierarchical organisation, whereby decision-making is "top heavy". This centralised, mechanistic structure is often bureaucratic in nature and does not create a good environment for learning. Individuals do not have a comprehensive picture of the whole organisation and its goals unless they have been properly communicated. This causes political and parochial systems to be set up which stifle the learning process. A more flexible and horizontal structure must be formed to enhance the learning process: a flatter structure that encourages innovations and promotes passing of information between workers, thus creating a more informed work force.

At the same time, the management level must also take a new philosophy to create an environment of "openness" to encourage reflection. Management must be willing to accept prudent errors and a certain level of uncertainty and calculated risk. The middle and lower echelons are encouraged to question decisions without fear of reprimand as this questioning can often highlight problems at an early stage and reduce time-consuming errors. Feedback is key to this. One possible way of implementing the culture of "openness" initially is to introduce anonymity so that questions can be asked or suggestions made without the source being necessarily known. This was demonstrated during the Comprehensive Awareness Seminar organised by Joint Operations Department where NetMeeting, an electronic conferencing tool was used.

Leadership

Leaders should foster the System Thinking concept and encourage learning to help both the individual and the Army in learning. In Team Learning, the leader must also play an active role to help restructure the individual view of team members. For example, leaders must help the team members understand that competition is a form of learning, not a hostile act. This is apparently true in the conduct of two-sided exercises and the importance of learning versus winning must be amplified.

Leaders must take on a role as a partner, a mentor or a coach and seek to understand and ask open-ended questions that will create an environment that reduces interference or negative self-talk. Feedback can be made easier for the learner to hear and use by asking non-judgmental questions and suggestions that are easy for the learner to hear and act on. The objective is to create a nurturing environment that makes the individual feel valued, no matter who they are or where they belong in the organisational structure. In the quest to understand others, we can develop the inner self of becoming more forgiving, patient, and more

understanding. This is to create a culture very much the same as that found in the story of a flock of geese flying in V-formation, where people share a sense of community and help each other get where they are going more easily, travelling on the trust of one another.

Leaders, upon seeing the benefits of learning, must provide the commitment for long-term learning in the form of resources. The amount of resources available in terms of money, personnel and time will help determine the quantity and quality of learning. These can be viewed in terms of investing in the infrastructure of training schools and institutes, posting quality instructors there and setting reasonable periods of time for training.

Empowerment

Empowerment implies shifting the locus of control from the commander to the men. This is to inculcate a sense of responsibility for the actions by the individual but ensures that the commander does not lose involvement. They still need to encourage, enthuse and co-ordinate the workers. Equal participation must be allowed at all levels so that members can learn from each other simultaneously. This is unlike the time-consuming top-down structure adopted for traditional learning.

Learning Culture

"Often times it is culture which makes the difference between success and failure. Thus to prepare for the next century, we must give emphasis to both knowledge and culture."¹¹

BG(NS) George Yeo

The key to achieving a knowledge-based Army is continuous learning, relearning and unlearning. Individuals must take it upon themselves to learn. To embrace the knowledge economy, learning to learn and wanting to learn must be the new culture. The component of learning, relearning and unlearning must be added to traditional learning that focused on education and training. We need to become more effective learners in order to maintain self-generation and knowledge growth. As we sort out or reflect upon our experiences, impressions and past learning, we relearn the key lessons. In the unlearning process, some old ideas are discarded. As mentioned earlier, the process of learning, relearning and unlearning has to be done in a collective manner in the form of team learning i.e. learning from one another. It is through the sharing of information and knowledge that we create more knowledge and gain the understanding to achieve wisdom.

Infrastructure to Support a Learning Army

Whilst understanding the ingredients and foundation required of building a Learning Army is important, it is equally important to identify the necessary learning infrastructure and tools required to support the learning process. With the proliferation of Information Technology, the ability to consolidate, organise, process and analyse information in an orderly manner has improved tremendously. It is making access to information easier with the advent of data warehousing, data mining and visualisation. How the Information Technology infrastructures together with Distance learning and the After Action Review (AAR) process and the necessary Knowledge Management System required to support a Learning Army are briefly described and discussed.

Intranet, Internet & Distance Learning

With the proliferation of Information Technology in the knowledge economy, the Army has also tapped on the potential of the Intranet and Internet to enhance information sharing. On the Intranet, websites and depositories are created to house valuable information and lessons learnt. However, the lack of powerful search engines, a common corporate portal, database management and content management tools have made the Intranet not so "user friendly". Furthermore, the access is limited to within the organisation, leaving the majority of the NS orbat out of the loop. New initiatives are presently in the pipeline in a bid to

rectify some of these shortcomings to enhance learning. In order to reach out to NSmen, the MINDEF Internet Website (MIW) was created on the Internet to facilitate information sharing with NSmen. For distance-learning, initiatives such as the Open Academy on the Internet and the Self-Paced, On-Time, On-Need (SPOT-ON) programmes is implemented to facilitate learning in the comfort of home and during our own time. Presently, access to these sites and facilities is restricted to only personnel who will be attending SAF conducted courses such as the Company Tactics Course (CTC) and the Battalion Tactics Course (BTC). To reach out to a wider audience, it is recommended that each individual member of the SAF be granted access to these facilities to encourage continuous learning at all levels.

After Action Review (AARs) and a Knowledge Management System

In the Army's bid to learn from experience gained during exercises, debriefs were conducted post-exercise on performance feedback as a way of improving for the next exercise. Subsequently, the After Action Review (AAR) was implemented to replace debriefs by providing a more structured and systematic approach to review what went well, what did not go so well and how we can improve. However, only formal AAR reports for ATEC evaluations are maintained at a central depository. The respective parent units maintain other less formal AAR reports. The archival and dissemination procedures vary for formal and informal reports. While the AAR tool helps to capture important lessons learnt during exercises, its full potential is not fully harnessed as it is impeded by the dissemination process. Often, lessons learnt are restricted to a few privileged audiences or made available only upon request. It has been identified that what is lacking to facilitate learning is a system that will help to leverage on the large pool of new knowledge created through the AAR process. Learning from the United States Army, the findings is the need for an effective Knowledge Management System (KMS) to help the Army collect, codify, store and finally disseminate operational knowledge throughout the Army. Other than sharing knowledge, the other benefit of a KMS is that it will also help to prevent "corporate amnesia" as a result of short job tenure; otherwise individuals and teams will have to constantly "reinvent the wheel" at the workplace.

Relevance of a Learning Army to the Nation

As we embark on the Learning Army journey, the organisational culture of the Army will change inevitably. The question is whether it is for the better or for worse? There is no doubt that the answer is the former. The reason is obvious: We have a National Service Army made up of "citizen soldiers". The Learning Army culture will not only help to develop our people into "thinking soldiers" but also "thinking citizens" in the knowledge economy. On one hand, the new learning culture will help to bring out the full potential of our people to produce an operationally ready Army to fulfil her primary role in ensuring the security and sovereignty of our nation. On the other, it will also help to prepare our people to contribute to the other aspects of the economy and society as the knowledge worker. The openness and willing-to-share environment in the Army will not only effect change within it but also externally when soldiers turn operationally ready and step out to society to work. On top of the security provided, by helping the nation to build a credible workforce, we also indirectly help to attract foreign investors to boost the economy. Furthermore, many of our servicemen are also leaders in their own context in the civilian society, from senior executives to managing directors of multinational companies. By inculcating this learning culture in them, they can bring it along and help to build that culture in their working organisation. Some of them, as parents, will also bring this culture back to their families and build the roots in their children. The proliferation of the learning culture will have a domino effect, spreading to the whole NSmen and reaching out to the other parts of the society namely the women and children. Likewise, NSmen who work in multinational companies in Singapore or who travel a lot to other parts of the world on business trips will also bring their valuable lessons learnt from the civilian workforce to be shared in the Learning Army.

Conclusion

The Army started from humble beginnings to become what it is today. As the world moves from the second wave of the industrial economy to the third wave of the knowledge economy, the Army must evolve to embrace the knowledge economy in order to move to a higher plane and remain relevant to the nation. As concluded in the 1997 Army Planning Seminar, the Army had reached its pinnacle. In the past few years,

the Army has been adopting Learning Organisation (LO) core capabilities and disciplines advocated by the *Society for Organisational Learning* and Peter Senge's *The Fifth Discipline* to promote organisational learning at all levels. While training does help develop certain types of skill, a learning organisation involves the development of higher levels of knowledge and skills. The question is really "Has the Army been learning?" If yes, why the need to invest in learning now? The examination, though not exhaustive, concludes that our present assessment system of a unit's performance and our individual performance appraisal system has handicapped the Army's learning ability. In order to embrace the knowledge economy, a change in culture is the answer to evolving into a Learning Army. The Inner Game theory by Timothy Gallwey is used to examine how work can be redefined to harness the true potential of each individual in the Army. Then the foundations required of a Learning Army to make that harnessing process possible are discussed. They are namely: Awareness, Environment, Leadership, Empowerment and Learning Culture. The Infrastructure required to enhance learning discusses the potential of Information Technology and the importance of a system to manage and harness the wealth of knowledge gained through the AAR process. Finally, as we embark on the Learning Army journey, the organisational culture of the Army will change inevitably. This change is for the better and the Learning Army culture will not only help to develop our people into "thinking soldiers" but also "thinking citizens" in the knowledge economy. This domino effect is tremendous and will help to shape our future.

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Army 21 Through a Learning Environment

by CPT Marcus Tan Wee Kian

When I try to envisage what an Army that learns will be like, I always seem to be caught up in the process or concept rather than the creation. And in this case, the creation is a "Learning Army". But what do we really want? Peter Senge wrote, "Learning Organisations are organisations where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where aspiration is set free, and where people are continually learning how to learn together."¹ So what then are our desired results? Is it 100% in the Logistic Readiness Inspection (LRI) inspection? Is it 100% in the General Staff Inspectorate (GSI) portion of the Best Unit Competition (BUC)? Or even REDCON 1 in the Army Training Evaluation Centre (ATEC) evaluation? Are these really our desired results? Or should it be: - "Yes, I want 100% in LRI because it shows that I have a logistic system that works and that when the times comes for war, it will not fail me." "Yes, I want 100% in the GSI portion of BUC so that I am sure that the soldiers under my command are training safely and their parents can be assured of their well-being." So don't these processes lead to a higher goal?

Let's review the Army 21 Vision to understand what are our desired results or higher goals. The Army 21 Vision "The Decisive Force", is that the Army will be a ready and capable force to achieve a swift and decisive victory should deterrence fail. Army 21 will be a first-class Army with the highest professional standards and also a leading national institution that our citizens are proud of. Army 21 will be a People-Centred Organisation that cares for our servicemen and their families.² Now if this is what we want, we must be able to cultivate an environment in the Army to achieve its ultimate vision of being a decisive force. This is where the Learning Organisation plays an important part. It is the way to achieve maximum results. However, if the principles are not instilled and lived out, the Learning Organisation does not get us any closer to what we want and if it does not get us better results, then all the efforts will be in vain. To get the results and produce a Learning Army, we need to take a look at the five disciplines of a Learning Organisation and structure our system to attain them.

Personal Mastery

Everyone knows Beethoven for the beautiful classical music scores that he has written like "Symphony No. 9 in D minor (1824)" and "Waltz In D for piano (1825)". But few paid attention to find out that out of the five symphonies, one piano concerto and nine piano sonatas composed, he wrote one complete symphony, one incomplete symphony, three piano sonatas, diabelli variations and Missa Solemnis when he was completely deaf. How can anyone possibly write music without even being able to hear what he was playing? Well, Beethoven could. He heard the music in his mind; he had envisaged the entire symphony to know how to write it. Creators start at the end.³ Beethoven had articulated his personal visions and what was the current reality and with creative tension, achieved results we would have thought impossible.

In an organisation like the SAF, everyone has his or her own aspirations and visions, be it related to the organisation or not. However, not everyone will be able to bring their current reality to where they aspire to be. With creative tension, even if we do not achieve our aspirations, we will be a lot closer to them. How then can the organisation help the individuals be committed to their own learning to attain their aspirations and hence develop SAF into a Learning Organisation?

People with high levels of personal mastery are more committed. They take more initiative. They have a broader and deeper sense of responsibility in their work. They learn faster. For all these reasons, a great many organisations espouse a commitment to foster personal growth among their employees because they believe it will make the organisation stronger.⁴ In order that personal mastery is in every one of our core servicemen, mainly the regular officers, the SAF has to be committed to having a structure or system that allows and encourages personal growth.

In the Bible, the book of Proverbs 21:16 it is written, " Iron sharpens iron, so one man sharpens another." This is the heartbeat of mentoring that one person sharpens the skills, the thinking, the values and the character of another. Mentoring has been identified as an important way of developing our officers in the SAF. Systems are in place such that a selected group is under the mentoring care of a senior officer who will give career and professional advice when required. It is also a form of coaching as the mentored learn from their mentors. This is a good start. However, in order not to limit the benefits that can be derived from mentoring by just applying it with a select group of officers, we can evaluate and re-structure the system to encompass everyone. Currently within battalions, commanders would mentor their subordinates informally on their own accord. No structured system is in place. If we value every single soldier and their contribution, then we may need to formalise a proper mentoring system. It cannot be left to the flexibility of the commanders to handle their subordinates, as the quality of the mentorship may differ for various reasons, e.g. assessment biasness, and the full benefits of mentoring will not come about.

When the structure allows for personal mastery, it allows personal visions to be established and only with personal visions, do we see shared visions develop.

Just imagine yourself driving through the rural areas of New Zealand. Everything you saw was so beautiful and then suddenly you were captivated by a view and it simply took your breath away. You carefully took a picture of this view to show it to your wife. When you returned from the trip, you were so excited about the view that you started describing it to your wife and all she did was patronise you with a smile. It was only after she saw the photograph that she connected with the view you have seen. That was when both of you talked about the beautiful view as though you were there together.

In the Army, we have Army 21 Vision as our picture. But have we truly internalised the Army 21 Vision or have we like good obedient soldiers complied with what our commanders have directed us? How have we

communicated our vision and how close have we brought our soldiers to see the "beautiful picture"? In the Army, we have an advantage or a disadvantage depending on our perspective, when compared to other organisations. We are soldiers and as soldiers, we are mostly compliant, probably more so for regular soldiers. Personally, I never thought being compliant was a bad thing until I learnt about the difference between enrolment, commitment and compliance.

The committed person brings energy, passion and excitement that cannot be generated if you are only compliant. The committed person does not play by the "rules of the game". He is responsible for the game. If the rules of the game stand in the way of achieving the vision, he will find ways to change the rules.⁶ What I see as a difference is that committed soldiers are those who willingly sacrifice everything to see a better Army, but a compliant soldier will follow instructions blindly because at the back of his mind are issues of promotion and ranking that are driving him. These people accept the vision but do they really own it? A committed soldier will have the moral courage to voice out to higher authority if the process or ideas put forth are not getting us nearer to our vision. Are we ready for committed soldiers? Are we ready for soldiers to question the rationale for things like "No right turns in and out of camps in the SAF"? And when questioned, would we simply just brush them off or take time to re-evaluate the system. Not disputing the fact that there are times when a situation may call for complete compliance, more often than not, it is better for the organisation to have soldiers who believe in the system and live it out. In this example, a better solution to enhance our soldiers' safety may be to train our drivers better or improve the traffic system in and out of camps instead of having our soldiers follow the instructions blindly. Although it is a good preventive measure and it reduces risk, a better way could be considered and implemented than to have a quick "fix". All this boils down to communication. We need to examine how we have communicated our vision as well as our process leading to our vision.

At the birth of the Army 21 Vision, I was in the battalion as an OC and the vision was well communicated to the battalion HQ and company HQs. We had a presentation on video and notes that defined clearly what the vision is all about. But since then, we have had no follow-up on it through forum or otherwise; to give an indication on how much closer we have gone from current reality to vision. A vision is something you have to be constantly reminded of and it should be measured from time to time to check if we have progressed from compliance with the vision to commitment to the vision. Even if we are not fully aware of what the vision is about, at least we need to know the purpose of our existence, of being in the SAF, namely to ensure that no one takes away our home, Singapore, and to exercise the governing ideas for our vision the seven core values of the SAF. This cannot be left to individuals' willingness to learn on their own but a system has to be in place to encourage the fulfilment of the vision and the application of the values.

Currently we have systems or structures in place to build on our cause. As part of National Education, we have highlighted the importance of the SAF, its functions and its vision. In leadership training, we are constantly instilling in our future leaders the core values that have been our guiding principles all this while, even before the birth of Army 21 Vision.

It was once written, "The greatest monument of a man is not a pyramid, but a record of service built upon a foundation of solid virtues: honesty, purpose, application, study, work and kindliness." In a way, what sort of a "monument" the Army can give to this nation is probably an Army whose service is anchored in the seven core values of the SAF. We have been able to communicate all these at a very broad level but we probably need to go on a more personal basis. Mentoring may be able to meet this purpose.

If our leadership were all mentored, we have a chance to ensure close to perfect communication of Army 21 Vision. It may not be the only way but it can be one of the ways. At least we are able to always keep in check with one another, the alignment of our own vision to that of the Army's and remind each other on the guiding principles of our organisation, which in this case are the seven core values.

As an organisation, how does this even help our nation? Committed soldiers are committed citizens. When our soldiers recognise the importance of the Army's vision, purpose and guiding principles, they recognise the importance of defence and the sovereignty of the nation. The guiding ideas will also be part of their daily lives and will benefit the nation as a whole.

Mental Models

We all form mental models in our minds that dictate our behaviour. It is important for us to keep our minds open in order to reflect upon, inquire, evaluate and improve on our approaches. As it is once said, "Minds are like parachutes, they function only when they are open." And it has to be a constant practice.

As an OC, the Applied Behavioural Science Department (ABSD)'s survey done for the company with reference to my command was helpful for me to keep tabs on my management of my company and to determine whether there were any problems or issues I should pay attention to. And through this survey, I also had an opportunity to know the men's view of the commanders under me. Although I am usually told to view this survey with a pinch of salt, it nevertheless reinforces prior views I have of certain commanders or platoons. And in certain categories that may seem unfavourable, I adopt the "seeing it objectively" approach. If at my level, as a sub-unit commander, I have certain inclinations in my responses, I am sure that at the commander's level, there will be even more mental pictures formed. These surveys are meant to help and they do but perhaps the way the results of the survey are presented needs to be looked into. Trained psychologists will probably need to assist commanders at all levels to reflect on the feedback by their subordinates. And through this, hopefully, generative learning ensues.

Peter Senge's *The Fifth Discipline* looked at how organisations like Hanover Insurance established a learning environment and in one of Hanover's Credo on Mental Models, it was mentioned in the third Credo, "Self concluding discussions result in deeper convictions and more effective implementation."⁷ In the Army that had always had a more traditional hierarchical approach to things, it is sometimes quite unavoidable to arrive at a decision through the top-down approach. This is usually due to the time sensitivity of the matter. This approach is adopted in handling appraisals. A better way would be to have the serviceman come to his own conclusion in agreement with his superiors i.e. self-conclusion. This approach will help the serviceman identify and be convicted in the areas that he requires to learn. Our capacity to learn should never be bounded by our rank, our age, our superiors or even ourselves.

Team Learning

"A team never wins championship if its players have different agendas."⁸ A group of talented individual learners will not necessarily produce a learning team, any more than a group of talented athletes will produce a great sports team. Learning teams learn how to learn together.⁹ If a team were to learn, there must be a common agenda, a shared vision and that is when a team begins to learn together.

In the Army, with the implementation of the After Action Review (AAR) recently, we have recognised dialogues and discussions as important components to team learning. Through the use of AAR, opportunities are given to everyone who participates in an activity to share one's views so that the team will be able to learn from one's experiences. One important aspect covered by Peter Senge in *The Fifth Discipline* is this issue on defensiveness. "It is not the absence of defensiveness that characterises learning teams but the way defensiveness is faced." The one who leads the AAR plays a very important role in this aspect. Usually the commander who leads the AAR sets the tone for discussion. If the commander adopts a "finger pointing" approach while doing an AAR, this would discourage constructive participation in the discussion. Instead, the men would go into their defence routine of "building a brick wall".

We have the means, which is the structure, in place for dialogue and discussions. This has been and will continue to be an effective tool for the Army to learn. However, we need to tackle the issue of hierarchy. As stated in *The Fifth Discipline*, "Everyone involved must truly want the benefits of dialogue more than he wants to hold onto his privileges of rank. If one person is used to having his view prevail because he is most senior person, then that privilege must be surrendered in dialogue. If one person is used to withholding his views because he is more junior, then that security of non disclosure must also be surrendered. Fear and judgement must give way. Dialogue is 'playful'; it requires the willingness to play with new ideas, to examine them and test them. As soon as we become overly concerned with 'who said what' or 'not saying something stupid', the playfulness will evaporate."¹⁰

System Thinking

In a HDB block, the letterboxes are centralised at the void decks for the convenience of the postman to deliver letters. Unfortunately, residents also receive numerous advertisements from companies who make use of this "convenience" to mass deliver their pamphlets. However, that is not the issue. The issue arises when the residents choose to dump these mails onto the floor next to the letterboxes and create a mess. The solution by the town council was initially to place rubbish bins near the letterboxes to encourage residents to dispose their unwanted mails but this did not help. Residents continued to litter. Town councils then built a drain-like feature in front of the letterboxes to allow the resident to sweep their unwanted mails into the "drain". It looked like a sound solution but if we were to examine it, it did not address the issue of inconsideration. Although most residents confine their disposal of the mail to the "drain", there are still others who simply do not care if they have dumped their unwanted mails out of the "drain". This measure has only encouraged residents to feel that it is all right to litter since the town council will clean up the mess.

System thinking allows understanding of systems, structures and the inter-relationships that directs our behaviour. Having this capacity, we will be able to see complex and detailed patterns that help us build a learning structure.

The Army has fallen into the trap of quick fixes. And this is not because we are looking for an easy way out but because at times our operational readiness is so time sensitive that we cannot afford to wait for a better solution or for someone to repeat the mistake for everyone to learn.

The example "No Right Turns", illustrated under the Personal Mastery section, is a quick fix. It was an accident caused by a soldier trying to turn right into the camp and so subsequently all vehicles were stopped from turning right. The idea does have an immediate effect of reducing the risk of accidents caused by vehicles turning right. However, this should just be a temporary fix. A long-term fix may be to look into the traffic system of the camps or even re-look at the training and selection of drivers. Vehicles that turned right were not the root cause of the problem and stopping everyone from doing so does not solve the risk of accidents. As a result of this "No Right Turn" rule, some drivers may have to travel further to reach their destination and this exposes them to a greater risk of having an accident.

In recent years, ATEC reports have always reflected that junior commanders are weak in command and control. This opinion is agreed by most that have held senior appointments. However, on reflection, have we not been culprits of this phenomenon of the junior commanders? When a section commander cannot command his section, we send our platoon sergeant to take over, when a platoon sergeant cannot conduct an inspection during battle procedures, we send our Company Sergeant Major to take over. Have we not taken away the learning opportunity from the one who really needs it? By doing this, we are only compounding the problem, which will be exposed sooner or later like when the Battalion Proficiency Test (BPT) is held. The worse effect is that when we get someone else to take on the job, that someone has less time for his own primary task.

Coming from the Officer Cadet School, I know the importance of inter-personal relationships. If we train officers who do not fulfil their roles as platoon commanders, we can never get well-trained soldiers. That is the reason that there can be no compromise in training. It becomes a vicious cycle. Imagine a company that allows manipulation of scores to take place in an Advanced Trainfire Programme (ATP) shoot just to achieve results of good marksmanship without actual skills. The company will merely have the temporary elation of having good results on paper. However NS companies that come under these cadets, who are later commissioned as officers, will tend to seek the easy way to achieve results. Are we able to rely on such companies in times of war? The consequences may be realised much later, but by then it will be too late for regrets.

It is encouraging to note that a recent directive from G6 Army has shown that the Army has moved a step towards to being a Learning Organisation. This directive is on the use of blanks for live-firing rehearsals. We used to use blanks for live-firing rehearsals until it was banned due to an incident of mixing live and blank ammunition. The immediate quick fix was to ban use of blanks in live firing pending the investigation. This

was a good arrangement. Once the investigation was over, the ban was lifted and new regulations to the use of blanks were issued. Much thought has been given to the incident and what we have now is a more realistic rehearsal for live-firing and better safety measures to eliminate the chances of mixing live and blank ammunition.

We must recognise that the organisation and its system are inter-linked and changes or measures cannot be implemented in isolation. If we should erroneously do that, the learning process is short-circuited.

Conclusion

As part of the Army, we must recognise that there are obstacles like hierarchy that at times restrict openness in learning and how our mental models affect our behaviour, but it is not without solutions. More importantly, we know the importance of having a learning culture in the Army in order to achieve the results that matter the most to us: Army 21. And achieving this shared vision begins with our personal mastery. Mentoring, in my opinion has a key role to play in aligning our personal goals with our Army's vision. Many of the other issues mentioned are related to mindsets that constrain us. We must get past these mindsets that restrict our learning.

All these take time to change. Developing the Army into a Learning Organisation will not be an overnight affair. Many of the disciplines come with lots of practice and application. It takes time for the principles to take root. Just like the roots of a vineyard; it takes years for it to have a strong hold. Idealistically, one day we will all see our roles in the Army as a higher calling than just national service or a career.

This essay won a Merit Award in the 4th COA Essay Competition 2001.

Endnotes

1. *The Fifth Discipline* by Peter Senge, Pg 3

2. Army 21 vision statement

3. *The Path of Least Resistance* by Robert Fritz, Pg 51

4. *The Fifth Discipline* by Peter Senge, Pg 143

5. Ibid. Pg 206

6. Ibid. Pg 221

7. Ibid. Pg 190

8. *The 21 Irrefutable Laws of Leadership, Follow them and People will Follow You* by John C. Maxwell, Pg 161

9. *The Fifth Discipline* by Peter Senge, Pg 257

10. Ibid. Pg 245

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**6. *Built to Last Successful Habits of Visionary Companies*, James C. Collins and Jerry I. Porras (1994) First
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Printed by Thomas Nelson, Nashville 1998**



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Book Review:

Hannibal: The Novel (Washington: Regnery Publishing Inc, 1996) by Ross Leckie

Reviewed by MAJ James Tan Ming Chong

"I am old now, and the time of my people is past. No more will the lineage of Barca fight the Romans whom we hate. The Paradise of Mithra holds all those that I have loved, souls whom the River of Ordeal could not scald. Soon I shall join them.

The ravens and the vultures gather over Carthage. I see its doom. Our ships have long been sunk or captured. Their oars of the oaks of Bashan and the Ashurites are broken, sound no more. My army is dispersed. I am far away.

I sit now, naked from the heat in a borrowed room in a foreign land, alone. They sent for me. I would not go. Soon they will come. They have thought it too hard, too hazardous a task to wait for the death of an old man.

My body stiffens. My wounds throb. I am as an old and wizened oak tree in a field, against which cattle have rubbed too long. Yet shall I tell my story, and be done. I see my body and its many, many scars. All are in front. The Romans shall not have me."¹

With this prologue, the epic tale of Hannibal is launched. It is the tragic tale of a 18-year old man-child who assumed command of the Carthaginian army. Driven by hate and defiance towards the Romans throughout his adult life, he achieved great military brilliance and impossible odds, but arrived at the end of his life with an understanding that man is but a shadow of a dream. Yet, he strove hard to determine his own destiny, even in death.

By the late third century BC, the age-old conflict between the two great powers of the Mediterranean had come to a head. The power of Rome was waxing, while Carthage was still reeling from its defeat in the First Punic War.

Born into one of the great Carthaginian families, Hannibal learnt very early in life that his environment was harsh and brutish, that mercy was a luxury that few could afford, and most importantly, that Rome was the great enemy that must be crushed.

Most of us associate Hannibal with his impossible trek across the snow-capped Alps to manoeuvre his army against the Romans, or his brilliant victory over them at Cannae in Italy. However, few are truly acquainted with Hannibal the man.

Drawing from a variety of classical sources dating to Roman times, Ross Leckie constructs for us a clearer picture of the man - his thoughts, experiences and reminiscences. For example, Leckie introduces to the reader the love Hannibal shared with his wife Similce, and the trauma following the death of their infant son while making the epic crossing of the Alps. The reader comes away with an understanding of the inner struggles and determination of one man against his obsession - the destruction of mighty Rome.

Salient Themes

Hatred

A number of themes are explored by Leckie throughout the account. The most prominent theme is probably that of Hannibal's hatred towards the Romans. Bred by his father, this hatred was carefully nurtured over the years, until it became the key driving force for his campaigns against Rome. The fire of his hatred was fanned by several key events: the death and mutilation of his father, the death of Hannibal's infant son, and the rape and torture of his beloved Similce by the Romans. The defeat of Rome became his all-consuming passion, such that he thought of nothing else. In one insightful passage, Hannibal disclosed to the reader that "I did not just plan how to kill Romans, but where."² Throughout the years of training and campaigning, his eyes were always fixed upon the direction of Rome.

As we follow the story's unfolding through Hannibal's eyes, we are likely to experience two states of emotion. On the one hand, we applaud Hannibal's sense of mission, and we urge him on. At the same time, we are filled with a sense of tragedy, because we are keenly aware that Hannibal's hatred has compelled him to travel on the inevitable road of loss and death. Indeed, the reader can only watch helplessly as Hannibal experiences personal anguish in the pursuit of his destiny.

Violence

Another prominent theme developed by Leckie is that of violence. The soldiers of that era indulged in customs and rituals against their enemies which, in our day, would be considered unacceptably barbaric and brutal. Hannibal's account is filled with poignant images of crucifixion, massacre, beheading, torture, and disembowelment.

Violence served as a common language understood by all in the Southern European region of the third century BC. It was accepted as a natural mode of interaction in conquest, pacification and delivering retribution upon one's enemy. To ensure success, it was common for the victor to completely wipe out the subdued enemy, and violent death was the accepted consequence for the vanquished. Hannibal's portrayal allows us to recognise the realities and necessities of these brutal measures and customs in his time. In the end, we are subtly reminded not to view these acts through our modern-day glasses, and we are not to judge but to understand.

Challenges of Command

A third key theme in Hannibal's account concerns the challenges of military command. Hamilcar, his father, was a great warrior, shrewd planner and revered leader of men. He created a deep imprint in Hannibal's mind that he would have very large shoes to fill when his time came to assume command of his father's forces and take on the role as Carthage's protector.

Under the tutelage of Hamilcar, Hamilcar's High Steward, and the scholarly Silenus, Hannibal received training in the military arts and science as well as in history, philosophy and languages. Such instruction was to stand Hannibal in good stead when he grew older and assumed military command. In particular, Silenus' teachings impressed upon Hannibal that those ignorant of history's lessons are often condemned to repeat them.

In addition to fighting abilities, Hannibal shows us the value of possessing philosophical knowledge, and oratorical and administrative skills. Hannibal himself was well-versed in the classical works of Homer and Plato, and he utilised the wisdom, concepts and words of these masters to great effect when inspiring his men and in his military administration. Over time, Hannibal learnt the art of inspiring leadership and of motivating reluctant men to fight loyally under difficult circumstances.

Education and an enquiring mind also helped Hannibal to devise tactical innovations and experiments. For example, he was successful in training cavalry to function as infantry, thereby creating his hybrid, multi-purpose and elite Hammer Guard. In modern times, the concept of mechanized infantry fighting mounted and dismounted is no longer new, but Hannibal's concept was certainly innovative in the ancient world of the third century BC. More importantly, such innovations reveal to us a military commander who strove to challenge conventional mental models and concepts, and who sought to improve military efficiency. In Hannibal's own words, "I took the best of the past and added the best of myself. I made an army that was never defeated because, until what I had made was copied, what I made was best."³

Hannibal appreciated that battlefield success depended not merely on able generalship but also on the troops' ability to execute the plan. In particular, he recognized that his "multi-national" force, comprising men of different races and languages, needed to be inter-operable and to function as a coherent fighting machine. Hence, Hannibal placed high value on the training and constant exercising of his troops to change tactical formations and in reacting to different battlefield scenarios.

Finally, the reader will realise that Hannibal was not merely a commander who focused on the "teeth", but a military leader who understood the importance of the "tail", ie logistics and supply. Learning from his father, Hannibal cultivated a habit for meticulous planning. He was a man of detail, paying great attention to calculating supply requirements and the building of resources in preparation for battle. Indeed, there is much to learn from some of his planning considerations.

Conclusion

Ross Leckie manages to tell a moving and vivid tale in 243 pages. Hannibal is carefully constructed, where the pieces of Hannibal's background, his ancient world, and historical events are merged to present a picture of the man and his times. Leckie seeks not to analyse Hannibal but to portray him. In doing so, the novel rises above mere historiography. By adopting a first person narrative, Leckie lets Hannibal share his own story and experiences. The reader is therefore able to experience Hannibal's world of violence, atrocity, joy, pain and honour in a more direct and personal manner. Instead of cold history with echoes of adventure, the reader becomes involved in an adventure with echoes of history.

The abovementioned title is available for borrowing at the [SAFTI MI Library](#). The catalog references are:

Hannibal : The Novel 137

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Endnotes

1 Ross Leckie, HANNIBAL, THE NOVEL, (Washington: Regnery Publishing Inc, 1996), p.ix.

2 Leckie, op cit, p.97.

3 Leckie, op cit, p.87



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Personality Profile:

Saladin



Saladin, at the tender age of fourteen entered into the service of Nur ad-Din, another great and respected Arab warrior. Given considerable military education and training, Saladin was quickly cultivated into a great soldier and because of his good performance he was placed in command of the Damascus garrison in 1156. From 1164 to 1169, during several campaigns of Nur ad-Din's conquest for Egypt, he distinguished himself. When his uncle Shirkuh died in 1169, Saladin ascended to his position as vizier, or Chief Minister of Egypt. In this new position, he strengthened 'Syrian' control over Egypt, dispelled revolts and fought off Crusader attacks proving his fiscal, political, military abilities.

When Saladin's nominal lord Nur ad-Din died in 1174, Saladin declared himself as his true successor. Not surprisingly, Saladin had to contend himself with Nur ad-Din's descendants who regarded themselves as rightful heirs. As a result, the early part of Saladin's reign was in contention against fellow Muslim leaders whilst observing a truce with the Crusader States.

By 1183, a sufficient Islamic front across Syria and Egypt had been unified by Saladin to battle against the Crusader States. Nevertheless, his first attacks on the castle of Karak in Southern Jordan failed. Subsequently, Saladin fell ill and spent the next two years recuperating. Then, the truce between Arabs and Christians was still observed allowing trade to caravans to pass amicably. But when Reginald of Chatillon, lord of el Kerak seized one particularly lavish caravan and took Saladin's sister hostage, Saladin issued a call to *jihad* in March 1187 and turned his attention to acquiring Crusader-occupied states. In the same year, Saladin summoned his allies and launched a major offensive in the great battle of Hattin (near Tiberias). This campaign culminated in the great victory of Hattin on 4 July 1187 in which Saladin won magnificently, capturing Guy of Lusignan and Reginald of Chatillon. The hitherto impregnable fortress, that controlled the most-used trade route between Egypt and Mecca, was captured in this battle. By September, Saladin had conquered the entire coast of Palestine to southern Syria, from Gaza to Jubayl. Following which, Saladin turned inland to Jerusalem which capitulated on 2 October 1187. It was a strategic and psychological triumph for Islam. However, despite its religious significance, Jerusalem was not a suitable administrative or military centre. Hence, Saladin preferred to rule from Damascus and Cairo during times of peace.

In 1188 Saladin continued to take several key castles in northern Syria. Devastated, Pope Urban II called upon the Christian kings of Europe to stop their interminable fighting and recapture the Holy Land. In 1189, the Third Crusade was gathered to come to recapture the Holy City of Jerusalem. This massive army was led by King Richard I (Richard the Lionheart), Emperor Frederick Barbarossa of Germany and King Philip II of France, possibly the three most important men in western Europe.

However, Emperor Frederick was drowned on his march across Europe. He was 70 years of age and his death shocked the army and only a small part of it continued to the Middle East. King Philip and King Richard proceeded to capture the Port of Acre. The Port of Acre would be an important capture which would allow the Crusaders to easily land their ships and it was also the nearest big port to Jerusalem. Upon King Richard's arrival six months after King Philip, Acre was taken over quickly. Using better catapults in tunneling Acre's fortified walls and, more importantly under Richard's strong leadership, Saladin was unable to relieve his garrison and Acre was lost in a month. The Crusaders continued their siege against Saladin's

forces and won several battles. However, King Philip fretting that his power would be eroded back in France dropped the crusade and returned home. King Richard though facing more serious threats to authority back in England nonetheless remained on the crusade. During subsequent confrontations, King Richard enjoyed unbroken success in every engagement with Saladin's forces. Saladin, realizing his army was overmatched employed a new strategy of avoiding direct contact while relentlessly harassing the enemy troops, thus weakening King Richard's forces immensely before they could reach the objective, Jerusalem.

During his correspondence with Richard the Lionheart, Saladin was steadfast in his reply to King Richard's insistence that he give up Jerusalem: "Jerusalem is to us as it is to you. Do not imagine, therefore, that we can waver in this regard." It soon became apparent to King Richard that the Crusaders could spend years besieging Jerusalem and yet find it virtually impossible to hold against the unwavering forces of Saladin.

Thus in September 1192, with the Peace of Ramla armistice agreement, Saladin and King Richard agreed on a truce. By then, Saladin's army was weary, munitions exhausted and the Sultan himself ill. Saladin had prevented the Crusaders from achieving their purpose which left the Latin Kingdom of Crusaders only a strip along the coast from Tyre to Yafo in the Mediterranean coast. The city of Jerusalem remained under Muslim control. After returning to Damascus, Saladin became bed-ridden due to pain and fever and in a number of days fell into a coma from which he never awakened. Saladin died on 3 March 1193 at the age of 55. He was mourned by the whole of the Middle East.

The character of Saladin and his work are singularly vivid. An excellent example of chivalry, he was generous towards defeated enemies, solicitous towards their wives and women and humane with captured prisoners. Hence, Saladin was greatly respected by the Crusaders in their expedition. Jerusalem, after being captured, was left open to pilgrims of all faiths allowing Christian Pilgrims access to the Church of the Holy Sepulcher. Saladin not only vanquished the Crusaders, but in his regime he also restored Egypt as the major power in the Middle East. Through encouraging education and reforming the financial structure to support the armed Kurdish and Turkish cavalry, Saladin initiated a prolonged period of economic prosperity, population growth and cultural revival. He repaired the Pharaonic canal that fed the oasis of Fayoum and also built colleges, making Cairo a great centre for Islamic Scholarship. In a space of 11 years, Saladin had built five colleges and a mosque which have been very important in the re-emergence of Cairo. When he died in Damascus, Saladin had almost no personal possessions but had earned himself a remarkable place in history.

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Selected Books and Reports:

Amitav Acharya



Professor Amitav Acharya is currently Deputy Director and Head Research at the Institute of Defence and Strategic Studies in Nanyang Technological University, Singapore. Prior to this appointment, he was Professor of Political Science at York University, Toronto and held research and teaching positions at the National University of Singapore, the Nanyang Technological University, Sydney University and Harvard University.

Acharya has been involved in several international panels pertaining to global and regional security which include the Japan Forum on International Relations' 1995 project on Asia Pacific security cooperation, the Council on Foreign Relations' Study Group on China in 1995-96 and Harvard University's Vision Asia 21 Project. Acharya has written extensively on Asia Pacific security issues and his academic interests cover Southeast Asia, international relations of the Third World and international relations theory.

Of Professor Acharya's earlier works, *A Survey of Military Cooperation Among the ASEAN States: Bilateralism or Alliance?* (1990) illustrates his perspectives on the evolving nature of bilateral security and defence ties affecting the role of ASEAN as a regional group. The paper's overview draws out ASEAN states' attitudes towards security co-operation and goes further in explaining why they chose bilateralism over alliance. The author then goes on to explain the constraints as well as the prospects for ASEAN military co-operation.

The Periphery as the Core: The Third World and Security Studies (1995) asserts that the end of the Cold War dramatically shifted the focus of security studies. Previous notions of security and international order, developed during the Cold War, were inadequate for states entering the post Cold War inter-state system. He attributes the inadequacy to the exclusion of Third World security problems. Acharya states the need for a change in the international order to that of a more decentralised form. That is, having region-specific approaches to security, arms control and disarmament to provide mechanisms for an international order in areas that international control cannot cope with or problems which exacerbate.

The Quest for Identity: International Relations of Southeast Asia published in 2000 is one of Acharya's more renowned works. In it, Professor Acharya begins by analysing the pre-colonial patterns of inter-state relations in Southeast Asia and how broad historical forces such as nationalism, regionalism and the Cold War international order shaped Southeast Asia's claim to be a region. It then discussed the evolution of this current regional organisation. The book critically assesses the validity of Southeast Asia as a region and the author concludes that regional co-operation would be essential in attaining security objectives in times of intra-regional conflicts and economic globalisation.

Published in 2001, *Constructing a Security Community in Southeast Asia: ASEAN and the problem of regional order*, Acharya delivered his analysis on whether the ASEAN model of conflict management can be applied to the wider Asia Pacific region. Also addressed was the pertinent topic of the impact of the Asian economic crisis on regionalism and ASEAN's response to the crisis. Through his account, Acharya contends that after three decades of progress of promoting intra-regional relations, ASEAN is in serious need of

developing new approaches to cope with intra-regional disputes that would be instrumental to regional peace and stability.

Following the September 11, 2001 terrorist attacks on the US debates about the meaning and agenda of security studies have been re-examined. Co-authored with Professor Steve Smith, Vice Chancellor of the University of Exeter, *The Concept of Security Before and After September 11* (2002) attempts to give an overview of current debates shaping the sub-field of security studies. The concept of security is examined through the diverse perspectives of six schools of thought, namely the Copenhagen School writers like Barry Buzan, Constructivists like Alexander Wendt, Critical Security Studies thinkers such as Keith Krause and Michael Williams, Feminists such as Cynthia Enloe, Post-structuralists like Bradley Keith and David Campbell and the United Nations Development Program's conception of Human Security. The Working Paper also contends that transnational terrorism and international responses have undermined security studies approaches predicated on Huntington's *Clash of Civilisations* and Fukuyama's *End of History*, and proposes that, in the post September 11 age, the security debate should be about the role of the US as the hyperpower in a unipolar world.

Besides contributing to the discourse on Southeast Asian regionalism through his publications, Professor Acharya has participated in various Track II forums. For example, he was a member of the Eminent Persons/Experts Group of the ASEAN Regional Forum and worked with the Council for Security Co-operation in Asia Pacific Working Group on Confidence-Building Measures.

All publications reviewed above are available at SAFTI MI Library.