Professional Mastery and Air Power Education

Sanu Kainikara

FOREWORD

This paper focuses on professional mastery, which is a critical attribute for success for every member of the ‘profession of arms.’ Dr Sanu Kainikara explores the elements that comprise the profession of arms from an air force perspective. He explains that an air force, being a technical force, is a collection of sub-elements that achieve technical mastery in areas such as flying, engineering, logistics or administration and that the higher level of professional mastery is achieved only when these elements are synchronised and orchestrated into a professional force that can deliver air power. He goes on to explain that the pinnacle of professional mastery is achieved when an air force plays a distinctive role in the grand strategy of national security.

Dr Kainikara cites air power education as an essential ingredient to prepare members of an air force in allowing the force to achieve and maintain strategic influence. The paper identifies that throughout their career air force members have both ‘push’ and ‘pull’ training and education mechanisms where it is up to both the organisation and the individual to prepare the member for the challenges of being part of a highly technical force. Training serves the current technical needs but it is education that will take an air force into the future.

The paper concludes by highlighting some fundamental truths about air forces maintaining their leading edge through a continuous process of education, learning, introspection and the practical application of knowledge.

I commend this paper to you.

Group Captain R.J. Keir, AM, CSC
Director, Air Power Development Centre

ABOUT THE AUTHOR

Dr Sanu Kainikara is the Air Power Strategist at the Air Power Development Centre of the Royal Australian Air Force. He is also a Visiting Fellow at the University of New South Wales. He is the author of eight books: Papers on Air Power, Pathways to Victory, Red Air: Politics in Russian Air Power, Australian Security in the Asian Century, A Fresh Look at Air Power Doctrine, Seven Perennial Challenges to Air Forces, The Art of Air Power: Sun Tzu Revisited and At the Critical Juncture. He is also the contributing editor of the book Friends in High Places (2009). He has presented papers at a number of international conferences and published numerous papers on national security, strategy and air power in various international professional journals. He is the recipient of the RAAF Chief of Air Force’s Commendation.

Dr Kainikara is a former fighter pilot of the Indian Air Force who retired as a Wing Commander after 21 years of commissioned service. During his service career, he has flown nearly 4,000 hours on a number of modern fighter aircraft and held various command and staff appointments. He is a Qualified Flying Instructor and a Fighter Combat Leader. He is a graduate of the National Defence Academy, the Defence Services Staff College, and the College of Air Warfare.
After retirement from active service, he worked for four years as the senior analyst, specialising in air power strategy for a US Training Team in the Middle East. Prior to the current appointment he was the Deputy Director Wargaming and Doctrine in the Strategy Group of the Department of Defence. He has also taught Aerospace Engineering at the Royal Melbourne Institute of Technology University, Melbourne.

He has two Bachelor degrees, a Masters degree in Defence and Strategic Studies from the University of Madras and his PhD in International Politics was awarded by the University of Adelaide.

INTRODUCTION

In recent times the employment of air power, as part of the broader projection of power in securing the nation, has come under intense scrutiny from a number of different perspectives. Primarily there has been debate regarding its application, the effects that it creates and the best manner in which it can be employed within the three fundamental principles of the Laws of Armed Conflict (LOAC) and precepts of military power projection—necessity, humanity and proportionality. The blurring of the distinction between combatants and non-combatants and the complexity of the contemporary battlespace further complicate the effective employment of air power. Under these circumstances airmen must have a clear understanding of all aspects of air operations and adequate professional mastery at the required level in order to ensure that the application of air power is optimised to meet national security requirements.

An overarching and critical factor in the generation and application of air power is the professional mastery of its practitioners, which will determine the success or otherwise of all air operations. Air operations must be carefully tailored and integrated into the joint campaign, which in turn should be guided by national security strategy. This can only be achieved by an air force with sufficient professionalism and resident skills that enable it to adapt rapidly to emerging and dynamic situations. Air power is always in demand and very often sufficient quantum may not be available across the complete theatre of operations. This situation demands that available air power is employed effectively and efficiently. Professional mastery—individual and collective—is an essential ingredient to ensure this, to achieve the desired effects while at the same time avoiding unnecessary wastage and dissipation.

Professional mastery within the military forces is broadly similar to the mastery required to be proficient in most other professions. This paper deals with professional mastery in the context of an air force and explores the role of education in furthering it. It also examines the different levels of collective professional mastery that an air force has to evolve through before it can achieve the status of an ‘air force of strategic influence’—functioning at the grand strategic level of national security. This has been done to emphasise the critical importance of professional mastery within the force to contribute effectively to national security and through that process become an element of national power. This paper attempts to clarify and underline the relationship between professional mastery and air power education.

---

1 Chris Clark and Sanu Kainikara (eds), *Pathfinder Collection – Volume 2*, Air Power Development Centre, Canberra, p. 87.
WHAT IS PROFESSIONAL MASTERY?

Profession and Occupation

The concept of professional mastery flows from the idea of professionalism and the distinction that is drawn between a profession and an occupation. So what is a profession? The Macquarie Concise Dictionary defines profession as ‘a vocation requiring knowledge of some department of learning or science, especially one of the three vocations of theology, law and medicine.'\(^2\) However, the contemporary trend is to call any trade a profession, and to label anyone in a paid occupation a professional.\(^3\) This tendency somewhat blurs the distinction between a profession and an occupation and needs clarification.

There is tacit agreement amongst scholars that the main basis for defining a given human activity as a profession is its theoretical underpinning. In a profession the activity or undertaking cannot depend purely on practical or psychomotor skills, but instead these skills—essentially the vehicle through which the profession serves its clients—must be underpinned and founded on an agreed body of theory. Further, a profession is characterised by three independent but mutually supportive features. First, that there is a distinct and unique set of competencies necessary to perform special tasks and services that have been specified by an autonomous body of practitioners within the profession. Second, that there is an agreed and laid down acceptable minimum level of those competencies—some of which may be community-related—that an individual must attain in order to be included within the ranks of that profession. Often this service to the community far outweighs any potential for economic gain. It is noteworthy that the practitioners provide the service and perform their functions predominantly for altruistic reasons and in fact may not be well paid in comparison to the rest of the society. The third feature of a profession is that there is a deep and abiding relationship between the practitioners of the profession and their clients. The service provided to the client is based on ethical principles, special trust, mutual confidence and a clear understanding of the profession.

On the other hand an occupation can be defined as habitual employment that is categorised in both economic terms and the values of the market place. The term occupation emphasises the balance between the organisational requirements of the employer and the economic needs of the employee. Implicit in this arrangement is an underlying implication that in an occupation the primary motivation is self-interest with the employee providing specific labour for an agreed financial reward in return.

A major characteristic of professions is their tendency to evolve and become institutionalised. Therefore, the real difference will not be visible in the blurred area between a profession and an occupation but in a rather nuanced understanding of the distinction between an institution that has subsumed the concept of a profession, and an occupation. The fundamental nature of institutionalisation is that it has ‘a purpose transcending individual self-interest in favour of a presumed higher good.'\(^4\) A military force is the embodiment of this evolution and is an institution that fully encompasses the values inherent in a profession. Accordingly, the military has long been known as the profession of arms.

An effective military force requires bonds and trust, mutual respect and confidence between members, ethical behaviour patterns and a clearly understood relationship with the nation that it represents.\(^5\) Without doubt a military force represents all the factors that are necessary to recognise it as an institutionalised profession.

The primary role of military forces is to ensure national security and defend the nation's interests through the application of lethal force if necessary. This entails participating in activities across the entire spectrum of conflict—from humanitarian assistance to wars of national survival—all of which are inherently human activities. It is therefore only natural that the core of all military forces is its people. Air Force considers its members to be its primary asset. This assertion needs explaining mainly because there is a widely held belief

---


that air forces are heavily dependent on technology almost to the exclusion of the human element. The fact is that while air forces are technology-dependent, their employment—in terms of strategy, concepts and tactics as well as the conduct of actual operations—is always decided and directed by human beings. People are central to air forces.

**Technical Mastery**

Air force personnel, or, for that matter, people in any organisation, need to be competent at what they do as individuals. This is essential to making the organisation function efficiently at the basic level. From an individual perspective, the necessary competence that ensures a person's ability to carry out specified functions within the system that produces air power is called technical mastery. From an organisational or air force perspective, it is essentially the proficiency of individuals in carrying out activities at the unit level, that when combined with the technical mastery of other individuals, directly produces or contributes to the development of a certain quantum of air power. The combined technical mastery of all personnel in a unit, cohesively brought together, will determine the unit's efficacy in performing its dedicated role as part of the broader force.

Technical mastery is the first building block, and an essential ingredient, that is critical to the development of professional mastery in an individual. In fact at the beginning of an individual's career in an air force, the focus—both personal and organisational—will always be the development of personal technical mastery to an extent wherein the foundation for further growth into the realm of professional mastery is firmly laid. Technical mastery is largely achieved through training, i.e. preparing people for the known elements of the organisation's functions such as knowledge of a logistical support system or the maintenance and repair of an aircraft engine. Without having achieved adequate technical mastery, developing professional mastery is an impossible task.

**Professional Mastery**

Professional mastery requires an excellent and comprehensive understanding of a profession's vast body of knowledge that is complemented by the recognised ability to apply that knowledge unerringly to achieve the desired objective. From an air force perspective it is the discipline of striving continually to achieve the most appropriate, effective and efficient way to generate and employ air power.

Professional mastery is fundamentally personal and is a combination of two interrelated elements. First, it is the sum of an individual's knowledge and understanding of air power and second, it is the ability to apply it confidently through the lens of personal experience and intellect. Possessing either one of these elements will not lead to professional mastery and neither will an unbalanced combination of the two. In order to achieve professional mastery at the appropriate level, it is critical to understand the correct balance between knowledge and experience as well as cultivate the ability to employ air power based on past experience. This experience itself is a complex element combining both personal and institutional experience brought together in a holistic manner through a comprehensive awareness of organisational history.

When the professional mastery of individual members of an air force is combined in a collective manner it has the potential to create a substantial—and extremely valuable—body of professional mastery within the force. It is the level of this collective professional mastery that marks an air force as one of calibre, whether in operations or as a strategic instrument of national power. There are two disparate issues that stem from this organisational level of professional mastery.

**Issue 1 - Leadership.** It is the collective professional mastery of an air force as a whole that permits it to realise the full potential of air power in operations irrespective of the intensity or duration. Therefore, it is necessary to translate individual professional mastery of the constituent personnel into a collective whole that is not only viable but will be greater than the sum of the individual parts. This requires adroit leadership at all levels of command. The mastery of individual personnel is brought together and translated into organisational professional mastery through leadership that is skilful and effective. In a cyclical manner, effective leadership is

---

critically dependent on the individual and personal professional mastery of the leader. In other words, leadership credibility is built on a combination of professional competence and personal trustworthiness. Leaders have to apply their professional mastery to shape the force to enable effective operations. As importantly, it also provides the vision and guidance while laying down the processes necessary for the positive evolution of the force. There is no doubt that a number of other character traits are equally important to ensuring that an individual is an effective leader. However it is also certain that the foundation to good leadership is professional mastery, especially at the operational and strategic levels of command. Only leaders who are professional masters will have the ability to anticipate and adapt to oncoming events, combined with the confidence to create and exploit opportunities.

**Issue 2 - Status of an Air Force.** The collective professional mastery of an air force is the underlying strength and the fundamental basis of its functioning. It becomes apparent, even through a cursory evaluation, that competent air forces must be able to provide a selection of appropriate options to the government when the nation is faced with a crisis. The inability of an air force to consistently offer alternative solutions, even to vexed issues, will gradually diminish its relevance in the broader national security calculus. This situation has the potential to rapidly become a downward spiral into irrelevance with all the associated consequences. In a more altruistic manner, discounting the descent into irrelevance, it is incumbent on air forces to be able to contribute effectively to national security if only to reciprocate the trust reposed on it by the nation and to return, in kind, the resource investment that has been made. The status of an air force with respect to its effective functioning is dependent on collective professional mastery.

Irrespective of the quantity and quality of the systems that it operates, an air force will remain mired at the tactical level if the leadership is content with maintaining an acceptable level of technical mastery. Individual technical mastery is essentially the ability of a person to carry out a dedicated role within the air power generation system in a competent manner. Collectively this would mean that the air force is able to operate air power systems in a competent manner. In other words, it will be able to carry out missions at the tactical level but may or may not have the ability to mount an operational level campaign. Unless individuals are able to transform technical mastery into professional mastery the organisation will have no opportunity to become a professional institution. In the long term, and considering the prevailing economic and socio-political environment and security imperatives of democratic nations, a purely tactical air force does not equate to full return on the investment made on it. The alternative to this situation is for an air force, however limited numerically, to strive to become one with strategic influence within the broader national security equation. Becoming influential at the strategic level involves a number of factors. An air force needs to repeatedly demonstrate tactical and operational proficiency in order to be considered capable of consistent performance whenever required. Operational proficiency will in all likelihood permit an air force to assume a position within the national security debate at the strategic level. However, gaining a position at the table is very different to being able to influence the conversation. In order to become influential at the strategic level of national security discussions the force needs to have acknowledged, holistic professional mastery of the highest order.

Considering the ingredients to produce high levels of professional mastery, it is easy to observe that in order for an air force to evolve, its personnel must possess adequate individual professional mastery. Thereafter, it must also be led by commanders who function at a high level of professional mastery with the ability to cohesively bring together the force’s inherent professional mastery. They must instinctively possess the other requisites that make them efficient and skilled leaders. Of necessity these leaders will have to create the culture and the environment that will automatically steer the organisation towards becoming committed to learning and growth, both individually and collectively. In essence, the strategic influence an air force can bring to bear is a product of the collective professional mastery and competent leadership.
PROGRESSION OF PROFESSIONAL MASTERY: A STAIRWAY TO HEAVEN

The Evolutionary Sequence of a Mature Air Force

Air forces are fundamentally fighting forces charged with maintaining the ability to apply lethal force from the air in the pursuit of national security imperatives and to promote national interests when directed by the government. This is an onerous responsibility and entails a myriad of activities that must be cohesively and logically brought together to ensure effectiveness. Collective professional mastery is the binding force and the thread of continuity that transforms disparate groups and units into an air force capable of projecting force and providing the government with viable options to ensure national security. Military forces are hierarchical organisations and are perhaps more rigid in their make up than most commercial groups. Along with an accepted hierarchy it is the professional mastery of each individual that makes up the collective proficiency of the force. In other words, a personal understanding of air power—which is the responsibility of every member of an air force—is the starting point from which the discipline of professional mastery, individual and collective, is built. Further, through this process each individual must aspire to maximise Air Force’s contribution to the ADF’s ability to fight and win at all times.

The collective professional mastery of an air force will determine its proficiency, efficiency and effectiveness. In a very generic manner the level of professional mastery resident in an air force can be superimposed on the broader military and national security campaigns. This will provide a visible scale that indicates the status of evolution of an air force in terms of its progression to full maturity. Further it will also illustrate the relationship of professional mastery to the development of an air force to one of strategic influence in the national stage.

Individual Technical Mastery

At the personal level, professional mastery begins from the apex of an individual’s technical mastery in his/her core responsibilities. In an air force technical mastery could be in flying, engineering or maintenance, logistics, administration etc,. In all cases this individual technical mastery should be oriented towards contributing effectively to the generation of air power. An air force that has only a bare minimum number of individuals who possess a high level of technical mastery will be able to launch and recover aircraft in a competent manner. However, such an air force will always lack the cohesion required to generate air power as an entity. In other words, individual technical mastery that is not efficiently combined will not provide the necessary impetus for an air force to apply air power effectively. This is the lowest level of capability of an air force wherein it cannot apply force in a united manner. This sort of air force will exhibit visible indications of being an armed force only through extraneous and inconsequential inputs like uniforms and other accoutrements.

Technical Mastery within a Unit

When the technical mastery of all personnel in a particular unit is brought together to complement each other, the unit can be presumed to be operational. Such a unit will be able to contribute positively to the generation and application of air power in a limited manner. An air force that is comprised of disparate units that in themselves are operationally sound but are not knit into a connected whole will only be efficient at the lower end of the spectrum of conflict in activities like humanitarian aid and peace monitoring. In these activities the requirement for the application of lethal force to ensure success would be minimal.

Professional Mastery - Single Service Domain

The binding together of individual units that have reached an acceptable level of internal cohesion requires an air force to transcend technical mastery and move up to the lower levels of professional mastery. There are two factors that influence this progression. First, individual members should have achieved a certain level of professional mastery that when combined will make the unit one that excels in the operational application of air power. In this instance it is implicit that the unit has an inherent ability to generate air power and the progression is towards improving the efficacy of its actual application.

Second, efficient application across the full spread of air power capabilities requires the force to function as a whole in a unified manner. This requires the force to attain collective professional mastery of the single service
domain. Essentially such professional mastery will be the combination of the internal professional mastery of all the constituent units of an air force which in themselves would have reached acceptable standards. An air force that has achieved this level of professional mastery will be able to function and contribute effectively in peace keeping and enforcement roles. These roles may require the application of lethal force—even in a preemptive manner at times. An air force capable of conducting these roles will have reached the lower levels of collective professional mastery necessary to function within the spectrum of armed conflict.

**Professional Mastery - Joint Level**

The next step in the evolution of an air force is the progression towards attaining professional mastery at the joint operational and campaign level. This is a major step forward and can only be achieved after three basic requirements have been met. First, only a force that has consistently demonstrated its ability to function as a professional entity in the single service domain can aspire to move into this level of maturity. Second, the force must have a minimum number of individuals who have attained a very high level of professional mastery. While actual numbers and percentages in relation to the total force cannot be accurately laid down, it is possible to state that the requirement would be for around fifty per cent of the force to have individually achieved professional mastery. Third, the force must have competent leaders at all levels of command. As mentioned before, leadership in a military force is predicated on the professional mastery of the individuals concerned.

Professional mastery at the joint level entails an air force being able to influence a joint campaign—from the initial planning, through its conduct and the final draw-down phase. Further, it will also be able to influence the achievement of the end-state in an armed conflict from a military perspective. An air force that has achieved this level of competency will be able to operate across the entire spectrum of armed conflict. It should be noted that air forces must be balanced forces with all core air power capabilities resident in them to be considered to have achieved this level in the evolutionary sequence. In contrast, a niche air force—a force with only selected core capabilities resident in it—will, at best, be able to achieve full technical mastery and in some instances also be able to function at the level of having professional mastery of the single service domain.

Only an air force functioning routinely with professional mastery at the joint level will be able to provide the nation with an adequate degree of air power with assurance as and when required. This is perhaps the minimum level of proficiency expected of an air force of this calibre. Air forces primarily exist to contribute directly to the nation's security, especially in times of potential or actual conflict. This responsibility can only be discharged effectively by an air force functioning at least at the joint level of professional mastery. The ability of an air force to operate competently in the joint military environment is critical to ensure the success of all military campaigns. Effective functioning at the joint level can be equated to an air force reaching a 'half-way mark' in its development and maturation. The effectiveness of air forces operating at this level and below will be normally limited to joint military operations. However, the more capable ones may be able to sporadically rise to the next level of competence in certain contexts and prevailing environments.

**Professional Mastery of Military Strategy**

Once an air force is confident of its ability to function in the joint environment and perform at the desired level of competence at all times without fail, it can then aspire to move further up the chain of professional mastery. This progression is underpinned by the collective professional mastery of individuals within the air force who understand and can influence the overall military strategy of the nation.

From the perspective of an individual's own professional progression this is a definitive step for two reasons. First, it involves functioning almost completely at the conceptual level, to the exclusion of operational activities. This transition from 'doing' to 'thinking' is normally difficult for all military personnel, but particularly so for airmen whose comfort zone is normally at the tactical and operational levels. Second, this transition takes the individual away from experience and competence in specific jobs, as well as an orderly and controlled training and career progression, to the realm of self education and development. These two reasons combine to restrict the number of people who successfully adapt to the changed conditions and fulfil a higher calling in their development. Further, it is also essential that those who make this transition are proven leaders of calibre because it is from the ranks of these individuals that strategic commanders are—or should be—chosen.
An air force with the professional mastery necessary to function at the highest levels of military strategy will automatically find itself being consulted and listened to in all matters that relate to military operations. Therefore, it will be able to influence the development of the concepts of operations that will be employed by the military to achieve the desired end-state. Such an air force will effectively facilitate a functioning joint force becoming a seamless entity. Much like the case of individuals, wherein this is a defining point in their personal development, this is also a defining point in the evolution of an air force. Even though this progression is not normally rapid or revolutionary, it is perhaps the most important step towards the maturation of an air force into a truly viable force.

**Professional Mastery of National Security**

An air force that can contribute to the creation and sustainment of the necessary impetus for the military to become a seamless force will find that it is set on a path that can, if carefully followed, lead the force to the next level of professional mastery. At this level an air force becomes one that is able to influence the national security calculus. While this might seem a simple and straightforward progression, the actual process is complex for two reasons. First, the military force of a nation is only one of the elements of national power that constitute the broader structure of the national security organisation. Further, within a seamless force, an air force is only one contributing part and therefore will have to carefully tailor its capabilities to be influential within the military and also within the national security organisation. Second, the collective professional mastery required of an air force increases exponentially when the force has to be a binding factor in a seamless military force while simultaneously being an independent influence in national security debates and considerations.

In order to be effective at the national level of security discussions, an air force needs to have a very high order of collective professional mastery. The complexity of progressing to this level is accentuated by the increased level of professional mastery required of the senior leadership for the force to perform adequately at this level. National security imperatives are developed over a period of time through robust debate. Most nations have an informal national security community—consisting of academics, practitioners, decision-makers, politicians and policy makers—who form the core group in influencing the government on national security issues. An air force of calibre should have sufficient number of personnel who are able to function well within this group. It is important that these people are capable of providing an unbiased assessment of air forces and air power within the context of national security for them to be influential.

For an air force to attain professional mastery at the strategic level of national security, the senior leadership must possess two outstanding qualities. First, they must have an astute understanding of contemporary national security requirements. Second, they should have the ability to foresee, with sufficient clarity, the future needs that could arise within the evolving security environment. Both these qualities require careful study, a well-developed ability for introspection, a high level of relevant experience and, most importantly, the capability to transform knowledge into practicality in the employment of air power. Only leaders with these capabilities and sufficient confidence in their ability to contain even dramatic changes in the politico-strategic environment will be able to elevate an air force to the level of professional mastery in national security. Air forces which are fortunate to possess this level of professional mastery will be able to function effectively in a multi-agency campaign both as independent elements as well as part of a seamless military task force. This places them on the first of two steps to achieve an appreciable level of influence within the nation.

**Professional Mastery at the Grand Strategic Level**

The ultimate position of excellence is for an air force to achieve professional mastery at the grand strategic level of national security. Moving into this space is neither easy nor within the grasp of many air forces. In fact, a majority of air forces fail to stay within this level of effectiveness on a long-term basis even after operating at this level under certain circumstances. For a number of reasons they remain content to function at the periphery of the grand strategic security considerations. However, an air force needs to be able to function at this level of national security for it to be an influential element of national power. Even air forces functioning at the immediately lower level of professional mastery in national security will not be able to consistently influence the strategic posture of the nation.
There are four inherent capacities that are critical to an air force achieving professional mastery at the grand strategic level of national security. First, it must have demonstrated very high operational excellence for a long period of time. A few operational successes in the recent past does not equate to the capability to consistently produce operational excellence and will not be sufficient to enable the force to be influential. Second, an air force must have functioned confidently within the national security community without having been moved to the periphery for any reason. Third, the force must have robust doctrine and concepts of operations at the strategic level that support the achievement of national security. Further, these have to be transparent at the unclassified level so that the nation can have a clear idea of the capabilities and functions of the force. Fourth, and perhaps the most important, is the capability of the leadership to function effectively at this highest level of national security. This is built on a civil-military relationship that must be based on mutual trust and respect of each others’ professional competence.

An air force that can function at this level will become an element of national power. Being an element of national power entails being effective and influential in:

- defining the bounds of national security,
- providing the government with alternatives and options in the case of a threat materialising,
- determining the desired end-state in any confrontation to meet national security imperatives,
- deciding the best course of action in achieving the desired end-state,
- planning and conducting multi-agency and joint campaigns, and
- tailoring responses to achieve the end-state with minimal expenditure of resources.

Air forces have to continually strive to achieve this level of professional mastery if they are to remain relevant to national security. Air power is a critical element in ensuring national security and in most nations this capability is resident in air forces. It therefore becomes important for the air force of a nation to be able to influence the national security policy so that a realistic understanding of air power is factored into the development of the policy. An air force has to be strategically influential if it is to be able to contribute optimally to the nation's security. Not many air forces achieve this status, but it is not a purely utopian goal either. Every air force of calibre, irrespective of its size, should at all times be on a pathway to achieving this status.

To Sum Up

Air forces can only be said to be effective entities—even if they are functioning at the lowest level of operational competence—when they have achieved a level of professional mastery that permits them to operate as a cohesive whole. This is the starting point for an air force to commence a journey of becoming an indelible part of the national security equation and an element of national power. Unless this constant progression is achieved, an air force is most likely to stagnate in terms of capability and the capacity to provide the government with viable options to national security issues. Professional mastery of the personnel, leadership qualities of the commanders and the ability of the force to adapt and transform continually in its search for excellence are vital to an air force acquiring strategic influence.
AIR POWER EDUCATION

A number of air forces have the ability to perform at the operational level with very high proficiency. However, it is noticeable that a majority of them lack the necessary robustness in strategic thinking, leading to a diminished awareness of air power issues in the wider strategic and security community as well as a less than optimum awareness of the challenges in the employment of air power within the force. The combination of these two factors manifests in the formulation of the national security policy and the overarching military strategy without fully taking into account the contribution of air forces. This is detrimental to ensuring national security and promoting national interests. The recurring tussle in many armed forces for the control of air assets is perhaps a clear indication that at the military strategic level there still exists a lack of understanding about the nature and theory of air power and its effective application.

There are two fundamental reasons for the obvious deficit in strategic thinking and knowledge within air forces. First is that airmen, and pilots in particular, are oriented towards the doing of things—the practical aspect of operations—as opposed to conceptualising philosophically about the reasons for, and consequences of, initiating a particular action. Historically the top leadership of air forces have been predominantly pilots and while there have been some extremely articulate strategic thinkers amongst them, the general pool from which strategic thought is derived tends to have a narrow base. This has been a limiting factor in the development and dissemination of strategic air power thought.

The second reason flows from the first. It can be traced to the reluctance of airmen to indulge in the intellectual exercise of writing down and formalising even the basics of air power theory and strategy. This aversion to acquiring and propagating knowledge at the broad and open level is still apparent within air forces, especially in the middle level leadership. A contributing factor to this situation could also be related to the inordinately long time and effort required to master the sophisticated systems that are operated and commanded by middle level leadership. Since strategic thinking also requires long periods of study and introspection, it comes into direct competition with operational requirements and is almost always given second priority. The outcome is once again a lack of vigorous thought process necessary to facilitate the development of strategic concepts that align with national security imperatives.

Development of strategic thinking and increasing the knowledge level of an air force as a whole is a direct function of its collective professional mastery. Thus professional mastery is the introductory step towards an air force becoming one of accepted calibre not only at the operational level, but also at the strategic decision-making level in a nation.

**Education, Training and Learning**

Education is a primary tool in developing the professional mastery of an individual and can only be ignored at the peril of the force stagnating at a low level of proficiency. Understanding the difference between education, training and learning is essential and fundamental to understanding the role of education in transforming a force from operational to strategic proficiency. In other words the differentiation between the three would also indicate the connection between professional mastery and military education.

Training is the repetition of defined knowledge, improvement of skills through instructions and practice, and the moulding of attitudes through formalised drills to achieve competency at a task. Examples of training include becoming proficient in standard operating procedures like emergency drills, or in actions to be initiated in a quick response situation. Education on the other hand is the development of an understanding of the guiding principles, theory and concept of a particular subject. The subject could be very broad or extremely narrow and focused. Unlike training, education provides individuals with the basic wherewithal to apply their knowledge to investigate new and even unique situations and to develop new and better methodologies for the completion of tasks. Essentially training is instruction on *what* to think while education teaches *how* to think.7

---

Military training is normally built around a competency based systematic approach. This approach is complimentary to a military force's definitive nature in the way it conducts itself at the operational and tactical levels. It is efficient at the lower levels of a hierarchically formalised organisation. However, it is inappropriate and inadequate at the higher levels where education, in the true sense of the term, is the paramount requirement.

In the education process there are two ways in which knowledge is assimilated. On the one hand, knowledge can be received from what is transmitted by the teacher and stored for further use. On the other, knowledge can be constructed from what is being taught. The difference is between what is taught and what is learned. Learning results from both training and education, but can also occur from everyday informal activities like casual social interaction or watching television. The critical point is that learning shifts the emphasis of the individual from a recipient of knowledge to one that is constructing an understanding of the subject with the knowledge being provided.

Organisational Intellect and Education

Although not articulated as such for a long period in the past, there has been an underlying acceptance within military forces that individual study and knowledge resident in its personnel are essential criteria for the well being of the force. This is so for air forces as well. Study and acquisition of knowledge are heavily dependent on the intellect of an individual. In a similar manner to arriving at collective professional mastery, it can be surmised that the combined intellect of the individuals in an organisation will form the 'organisational intellect.'

The Macquarie Dictionary defines intellect as 'the power or faculty of the mind by which one knows, understands, or reasons, as distinguished from that by which one feels and that by which one wills; the understanding.'

Knowledge and understanding, which come from the process of study, are abstract concepts. Intellect provides the tangible capacity to understand the purpose of the organisation as well as the fundamental theory that underpins it. Organisational intellect therefore provides a holistic and across-the-board knowledge of organisational purpose and theory. While there are a large number of factors—like leadership, values, vision, goals, communication, cohesion etc—that are essential to the success of an organisation, organisational intellect is a critical contributing factor.

So what does organisational intellect do? There are three aspects to the answer. First is that this is the repository of the knowledge of an organisation i.e. what it knows. Second, it provides an insight into the processes that go into the employment of this knowledge, i.e. how the organisation utilises this knowledge. Third, it gives an indication of the capacity of an organisation to learn and the speed at which it can adapt new knowledge to its particular environment, i.e. how fast an organisation can learn and then make the most of the new knowledge. If all the three aspects are seen to be positive in an organisation, then it is more than likely that it will be able to achieve and maintain a competitive advantage in its chosen sphere of functioning.

Organisational intellect—collective knowledge—has enormous inherent value. It has been seen that when an individual, who has been in an organisation for an appreciable period of time, leaves it, he/she takes with them a part of that collective knowledge. Further, it takes considerable time, resources and concerted effort to replace the tacit knowledge that was lost with an individual's departure. An organisation must therefore carefully nurture individual intellect and establish a culture of sharing knowledge to minimise the impact of the loss of knowledge associated with the departure of an individual. As far as possible the organisational intellect must be maintained as a larger quantum than the sum of individual intellects.

Knowledge and understanding are by-products of a vigorous education and learning process. However, it is very difficult to quantify the contribution of education to organisational intellect. Similarly, it is also hard to clearly identify the impact of improved knowledge on the performance of the organisation. However, if an organisation has a value that is greater than the sum of its tangible assets, it can be safely surmised that the difference is an

---


indicator of its organisational intellect. Modern military forces have identified knowledge as a performance enhancing capability in their organisational development process and, as a result they focus on developing and retaining organisational intellect. The creation of separate training and education commands or groups within a Service, which consume large amounts of resources, is an open acceptance of this undisputed tenet.

**Air Power Education and Air Force Culture**

Within an air force, air power education is the primary tool used to improve individual knowledge levels and through that process establish and enhance organisational intellect. This education must be aligned with, and directly contribute to, the three aspects of what organisational intellect delivers—increase the capacity of the organisation to be a repository of knowledge, improve the efficacy of its application and enhance the organisation's capability to learn. If these are unequivocally achieved, then air power education will be an essential part of ensuring the success of the force.

If an air force is expending extensive resources on air power education of its personnel, it is only natural that there must be a tangibly evident improvement in the organisational outcomes. In the case of military forces, including air forces, improvements that result from education may become apparent and be exhibited openly only in times of conflict. Superimposing this concept—that improvements in a military force, brought about through professional education, can only be realised in times of conflict—on to the Royal Australian Air Force (RAAF) raises two relevant and interesting questions.

For a considerable time the RAAF has relied on technological superiority to offset its numerical limitations, especially in the context of possible regional operations. This was always predicated on the superiority of equipment and the individual and collective technical mastery resident in the force as a whole. However, in the recent past potential adversaries have been able to bridge this technology gap and superiority in technical mastery to an extent wherein the edge that was enjoyed by the RAAF has greatly diminished. The first question therefore is whether or not organisational intellect built carefully on air power education will provide the decisive edge for the RAAF into the future.

The second question is a corollary to the first. Currently the outlook for Australia’s regional security environment is reasonably stable. The question that arises is whether this is a product of the visible and accepted superiority and effectiveness of the Australian Defence Force’s organisational intellect. Furthermore, it raises the question of whether the comparative stability of the region is the product of the ADF being seen as an efficient and successful organisation. Of the three, the first question is perhaps more relevant to our discussion here—the role of organisational intellect in maintaining a qualitative edge over potential adversaries.

All organisations have their own distinctive cultures. However, there is an aspect of culture that is peculiar to air forces that must be considered in analysing the organisational intellect of the force. This is the fact that knowledge of the underlying principles that guide the employment of air power is a vital and essential part of the air force culture. The influence of such knowledge, in the culture of other military environments, is relatively lesser in degree. For an air force, the employment of air power is its primary responsibility and it can only be effective if the organisation has the requisite knowledge resident within it to enable its effective application. Air power education is the process by which the adequacy of this knowledge is ensured. In a lasting manner, air power education reinforces the air force culture, which forms one of the core elements that ensures the operational competence of the force.

**What does Air Power Education Entail?**

Air power education is an ongoing process throughout the service term of an individual. Further, it cannot always be formalised into courses and other activities that are essentially ‘push’ mechanisms. There is also the issue of institutionalised courses gradually becoming more training-based than education. The need therefore, is to establish a culture that promotes education with specific emphasis on the broader aspects of the employment of air power. While a hierarchical system of courses can be made the basis on which education is developed, it will not cover the complete spectrum of knowledge necessary to be inculcated for an individual to become an air-minded professional. The answer is to encourage individual study to be undertaken to fill the gaps.
Individual study is a ‘pull’ mechanism and has to flow from the intellectual need that is felt by an individual. A certain amount of such ‘pull’ is instinctive in a number of people. However, the majority will require a catalyst to start them on this journey of self-education. It is in this sphere that the institution, through the instructors of formal courses and informal mentors, can become effective in spreading the desire to learn and imbibe more air power knowledge. Instructors and directing staff across the entire training continuum are critical to furthering air power understanding, which in itself is a direct contributing factor to organisational intellect. From an individual perspective, a judicious combination of formal courses and independent individual study is the beginning of a long journey to attain professional mastery—after one has achieved technical mastery of a high order as the first prerequisite.

There are two prevalent myths regarding air power education that must also be addressed if this process of education is to succeed in providing the necessary impetus for the individual, and the air force, to attain professional mastery. The first is the perception across the Service that air power education is only applicable to officers, especially at the more senior levels. This is detrimental to the larger good of the force since collective professional mastery of the force is dependent on each individual having an appropriate level of professional mastery—depending on rank and position—that when combined makes a force into one that excels through professional mastery. Second is the common belief that air power education at the philosophical level is only necessary for commanders at the higher levels. Further it is the belief that such knowledge is of visible importance only during times of conflict. Perhaps nothing could be further from the truth. Strategic understanding of air power is necessary for each individual of the force; the difference in knowledge levels between individuals being only the breadth and depth of the knowledge necessary to attain an appropriate level of professional mastery. Only with a strategic understanding of the employment of air power resident within each member can the Force function effectively across all levels of conflict.

These two fallacies are emphasised by a trait peculiar to airmen. Air force personnel as a group are inclined to be more practical and pragmatic than intellectually oriented. This is evident in the outstanding tactical and operational performance of almost all well established air forces. This is technical mastery at its best. This culture of excelling at doing things readily translates to an organisational culture embedded in task focus. While fully endorsing the need for a Force to excel in the operational tasks that it has to perform, it is also equally important for each person to understand how their individual technical mastery—and further development of professional mastery—contributes to the efficacy of air power. This can be achieved only through air power education, which will propel the individual—and the air force collectively—towards professional mastery. Education cannot be considered a series of courses to be undergone, a nuisance that has to be suffered and something that interferes with the performance of one’s primary role. Air force culture must transform to ensure that every individual looks at his/her primary job through the prism of professional mastery imbibed through holistic air power education. A positive understanding of all aspects of the employment of air power among personnel, brought about by knowledge and constantly improving professional mastery, is a foundational requirement for the success of an air force.
THE CONFLUENCE—AIR POWER EDUCATION AND PROFESSIONAL MASTERY

There is general consensus and acceptance that the ‘profession of arms’ is a profession like any other that meets the definitional requirements. People from any of the three environmental Services—army, navy and air force—whose primary occupation in life is military service form the core of this profession. In order to qualify as professionals, they have an obligation to be experts in their chosen field. Therefore airmen, who specialise in generating and delivering air power for the security of the nation, have a duty to be professional experts of air power.\(^\text{10}\)

An air force’s primary function is to generate, apply and sustain air power to meet the political objectives laid out by the government of the day. The focus should always be the employment of air power in the context of national security. Professional mastery of air power, therefore, should be the ability to employ air power optimally so that its effectiveness in meeting grand strategic and military strategic objectives is enhanced. While technical mastery is a critical component in achieving this, the primary requirement to function effectively at the grand strategic level of national security is the ability of a force to master conceptual thinking—to have adequate collective professional mastery.\(^\text{11}\) Professional mastery encompasses technical mastery in operations and conceptual thinking and the ability to implement the necessary concepts at the highest levels.

The development of professional mastery involves having a clear understanding of the basics of military theory and strategy and then being able to translate this knowledge into the contemporary air power context. The ability to employ technologically sophisticated systems is but the start point in the long journey to become a professional master of air power.

Even a few decades ago military forces were primarily focused on defeating an adversary through the use of armed force. This entailed destruction of infrastructure and resources to make the adversary capitulate. However, the requirement today is for military forces to be able fight and win against irregular forces whose \textit{modus operandi} is almost always unclear and unpredictable. The need in these cases is more to avoid destruction and, at the same time, facilitate security and build up stability. These are diametrically opposed end-states in conflict. The first step in professional development is therefore to understand the characteristics and conduct of war, with special reference to the one in which the force is involved. It is necessary to view the conflict as it is in actuality without the perception being coloured by preconceived ideas. This means that the characteristics of the war being fought, and those of the conflicts that are likely to be fought into the near future, should have a direct influence on military education to ensure professional mastery.\(^\text{12}\)

Appropriate education is the cornerstone on which professional mastery of air power is built. Lack of education and knowledge in the necessary areas, will inhibit an individual from progressing beyond a certain level of technical mastery in the application of air power. When this permeates an entire air force, it becomes very clear that without adequate emphasis being laid on education the force will remain at the fringes of technical and professional mastery. The implications of such a state of affairs are dire—both in terms of national security and the well being of the air force itself.

---


\(^{12}\) ibid.
CONCLUSION

The profession of arms has to contend with the uncertainties and lethality of war. Therefore, achieving professional mastery of air power is a more complex process than achieving mastery in some other profession. It entails gaining knowledge through dedicated study, more inclined towards a ‘pull’ rather than ‘push’ mechanism. Self-improvement—inherent or imbibed—is the key to achieving sufficient levels of professional mastery through study, education and learning. This is particularly applicable to air forces that prize operational excellence based almost entirely on technical mastery. Being a proficient airman at the operational level is only the first step in developing professional mastery. However, to think strategically about air power and develop professional mastery does not mean that an air force has to start its own processes and programs from scratch. There is already a sufficiently large body of work on the theory and application of air power available that can be used as foundations to build upon. So it will not be necessary to ‘reinvent the wheel’. However, the available wheel has to be assessed for its size and aptness for the role it is meant to perform, and modified if necessary. The requirement is for an air force to possess sufficient organisational intellect to be able to analyse the prevalent theories and then adapt them to suit its peculiar requirements.

Superficially this might seem fairly simple to achieve and incorporate across the force. However, such adaptations are complicated, and the processes to be established complex, because of three major reasons. First, they require knowledge and understanding of a number of disparate factors ranging from the nuances of security at the grand strategic level to the capability that air power can deliver at any given time and place in actual operations. The fine distinctions between what could be done in generic terms, what should be done in specific terms, and what is actually possible, is difficult to judge at the best of times. In conflict this becomes even more prone to errors of judgement. Second, contemporary air power theories and strategies cannot in any way be considered complete. They are works in progress. Just as the character and conduct of conflict is a constantly changing grid, the application of air power has also got to maintain the same dynamism for it to be effective. Third, the context of the application of air power is indelibly linked to national security imperatives. Even though national security imperatives do not change overnight, they are also continually undergoing evolutionary changes. Even minor changes in the national security equation manifest in a more significant manner at the operational level of the application of air power as well as other military elements. It can be seen that adapting existing theories to suit an independent air force will be an involved exercise.

There are some fundamental truths within which air forces operate. First, they are, and will always remain, an element of national power to be employed by the government to ensure national security and to promote national interest. Second, they are the primary agency authorised by the government to apply lethal force from the air when necessary to ensure the safety and security of the nation. Third, air forces are critically dependent on technology for their efficacy. However, sophisticated technology is resource-intensive to acquire, maintain and operate. This makes the status of air forces directly linked to the economic well-being, or otherwise, of the nation and susceptible to change with the vagaries of the national economy.

Obviously, the nation expects—and it is incumbent on an air force—to perform at its best at all times, delivering air power of calibre whenever and wherever required. This can only be achieved through the force being professional—having collective professional mastery—delivered through its organisational intellect. Acquiring professional mastery is not easy, nor is it a one-time effort. It remains a continuous process of education, learning, introspection and practical application of knowledge in equal measure. The shape and characteristics of future conflicts is difficult, if not impossible, to predict with any assurance. However, that does not in any way diminish the responsibility of the air force to contribute directly to national security. The primary asset that any air force has to ensure its agility to counter any threat to the nation will be the intellect and knowledge of its personnel—individually and collectively. Professional mastery of air power has never been more important.