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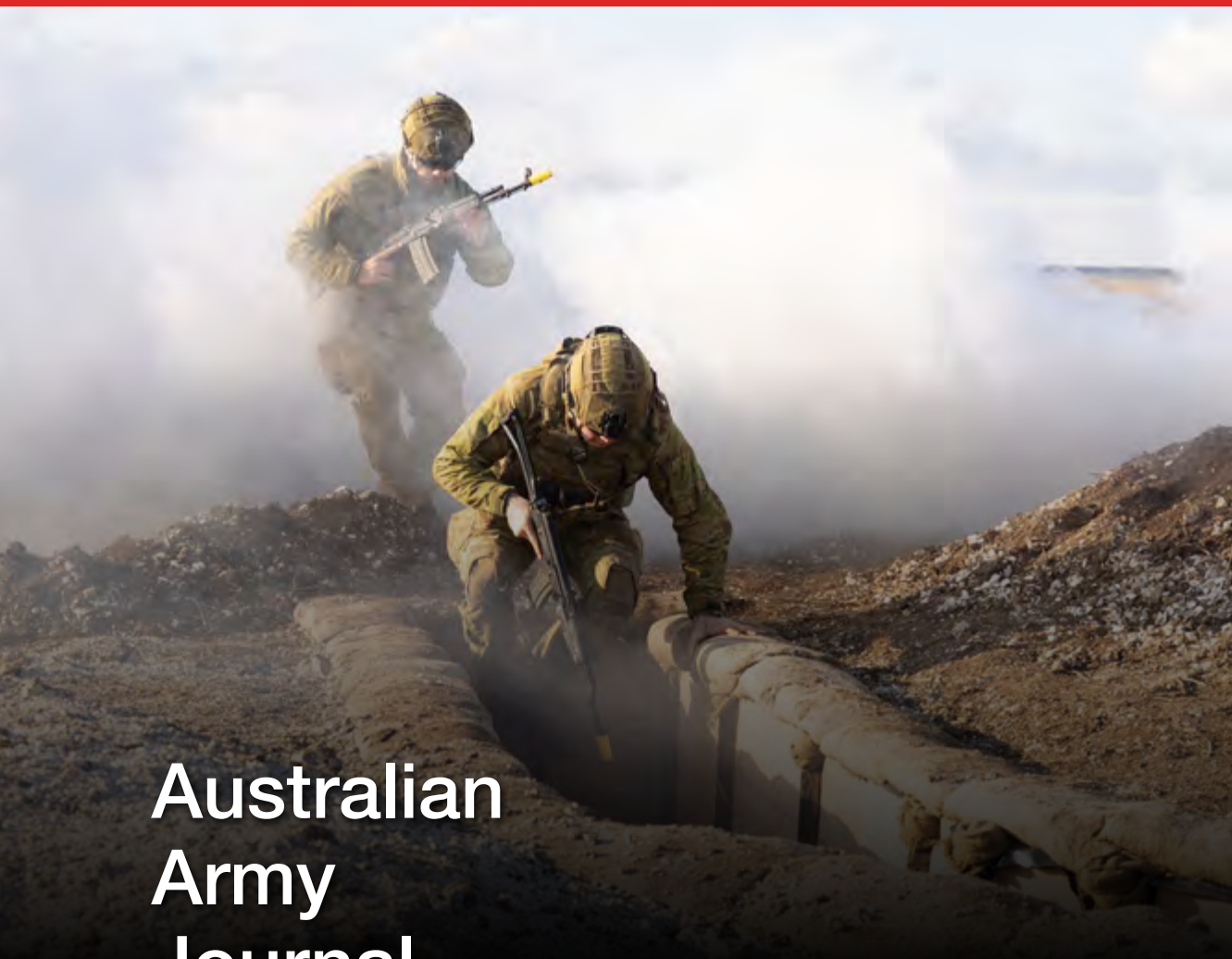

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Foreword

We stand at another inflection point in our Army's history. In April this year, our government delivered clear direction for our Army in response to the Defence Strategic Review.

The review recognised a pressing need for our ADF to adapt more quickly to the changing character of war to ensure we are best positioned to fulfil our purpose of deterring conflict and protecting Australia's national interests.

While we must adapt to war's changing character, we know that war remains an enduringly human endeavour; a contest of wills between people and nations.

Our Army must continually evolve if we are to be truly Future Ready. The challenge for us is to ensure we adapt fast enough to be equal to the opportunities and challenges of tomorrow.

We are now focused on implementing Army's contribution to the directed outcomes of the Defence Strategic Review. There will be changes to the scale and scope of our capabilities, the sequence and pace of delivery, how we are organised, the way we train, and the resources available to us.

Now is the time to embrace the vast intellectual capital in our Army and leverage your capacity for innovation. The Australian Army Journal is a vehicle through which you can engage in a contest of ideas and professional discourse on the future of our institution, our profession and our fighting force. I encourage you all to contribute your insights and ideas to upcoming editions on the evolution and utility of land power.

We would do well to heed the advice of the author Peter Drucker, who said that the best way to predict the future is to create it ourselves.

LTGEN Simon Stuart, AO DSC
CHIEF OF ARMY

Enabling Army's Team Learning

Chris Stothard

'Team learning' refers to a set of shared understandings, practices and processes that occur within a team as a collective and, fundamentally, can provide solutions to difficult operational problems. For example, when LTCOL (retired) Bruce Cameron was asked what his most important leadership lesson was, he answered:

> *[N]ot to be predictable. Four tank squadrons were deployed to Vietnam between 1968 and 1971. Each of them trained using exactly the same tactical drills (contact, defile and mine). By the time our squadron deployed in 1971, the enemy knew these drills as well as, if not better than, we did … Leaders must continually ask themselves: am I being predictable?*[1]

Developing and implementing unpredictable and novel solutions to tactical, operational and strategic problems relies on teams' and their leaders' learning and sharing solutions. Therefore, team learning can help enhance operational effectiveness, improve readiness, encourage innovation, build a more resilient and adaptive workforce and, finally, foster a culture of collaboration and teamwork.[2] Understanding how to better enable Army team learning fits squarely within a priority research theme in the Australian Army Futures Research Framework (AFRF)[3] as part of the 'developing teams, individuals and leaders' theme. The 2023 AFRF research priorities were drawn from across the Army, including the 2020 Defence Strategic Update,[4] which identified that 'the drivers of change … have accelerated faster than anticipated' with Australia now facing 'increasing[ly] strategic

competition' within our local region. The AFRF is designed to focus research attention on addressing blockers of Army delivering capability.

One of the well-known blockers to team performance and learning is hierarchy – namely, authority and power differences in teams.[5] As a 'deeply hierarchical' organisation,[6] the Australian Army also needs to learn, adapt and innovate quickly. Yet how Army might do so is not clear and this knowledge gap leads to diverse and fragmented views on team learning. For example, there is continuing debate about team or collective learning components within the Army training continuum.[7] This paper provides evidence-based recommendations for enabling team learning based on empirical statistical modelling, integrating both individual and team-level factors. In doing so, the nuanced relationships between rank and power differences, deployment, shared sense of psychological equity, and leadership are evaluated to better understand when, where and how Army teams learn. Anchored in the argument of former Director-General, Future Land Warfare, Brigadier Langford that the Australian Army 'should always seek to learn … being curious and inquisitive',[8] the paper focuses on understanding the interplay of factors which enable team learning within the Army. The Army is an institution typified by hierarchical command and control structure, a characteristic commonly considered to block team learning.

This paper presents the integrated findings from a series of scholarly research papers that focused on understanding when, where and what drives Australian Army team learning.[9] The data was initially collected for the 'Army as a Learning Organisation'[10] project, and recent statistical modelling that analyses applied contemporary multilevel theory and methods (i.e., quantitative analytic methods specific to nested data) to understand when and where Army team learning improves. Overall, this paper integrates my organisational psychological research analyses into a coherent whole. In doing so, it provides the Army with evidence-based recommendations that will ultimately help enable the Army's warfighting capabilities.

What Is Team Learning?

So, what *is* team learning? I defined team learning as primarily a process.[11] Team learning is the extent to which teams (and individuals) engage in mutual processes, including open discussion of mistakes, sharing and testing lessons learnt, or identifying problems, and viewing everyday work

as an opportunity to improve their way of doing work.[12] Team learning in action looks like supervisors or leaders regularly inviting questions and having discussions about what happened; team members volunteering when things have gone wrong or mistakes have happened; and the mistakes or issues being discussed without blame or shame. The team's shared expectation that their team leader will be open and accepting of potentially difficult issues means that many more problems can be (i) identified and (ii) prevented or reduced. In doing so, the team ensures that common, structural or systemic causes can be identified, and solutions tried, tested and evaluated and, if useful, shared across the team. In sum, this cycle of sharing and learning within a team, as a team, is 'team learning'. Evidence consistently shows that increasing the rate of team learning leads to a measurable improvement of team outcomes/performance,[13] so much so that many organisational leaders[14] continue to urge teams to learn faster across many different domains, including the leaders in the Australian Army.

As a concept, 'team learning' can be, maddeningly,[15] both obvious and vague-obvious when team learning is seen as the simple aggregation of individuals' learning, and vague when we ask who exactly is doing the learning in 'team learning'. Does the team learn as a single entity, or is it the simple aggregation of the team members? To help answer these questions, I drew on recent theoretical and methodological advances in organisational behaviour and systems thinking, and defined team learning as being made up of *both* individual and team elements, simultaneously.[16] Individuals are nested in teams, and teams provide the context within which individuals act. This definition avoids assumptions of reductionism[17] and holism.[18] Taking this perspective, I examined both individual and team level using a multilevel perspective to better understand what, when and where Australian Army teams learn.

While team learning is typically considered an element (or level) within organisational learning, team learning is focused on the immediate team context within which an individual soldier works. In this sense, team learning does not directly include organisation-wide processes, such as formal knowledge or information management networks. Of course, any team is nested within the larger organisation and is influenced by such information and knowledge systems. Much attention has been focused on organisational learning, including the Army's formal

knowledge systems, organisational culture, and informal/social networks within the Australian Army.[19] Similarly, military psychology has paid close attention to understanding an individual's shared mental models, and similar cognitive approaches.[20] What has been lacking is a focus on understanding the team's learning processes within the Australian Army teams. As yet, no research attention has been paid to understanding the contingencies that shape Australian Army team learning.

How Does Team Learning Enable the Army's Warfighting Capability?

Military histories are filled with examples of failures to learn,[21] to the point where we now have a military adage that 'Army always fights the last war'. A classic military example of a failure to learn is encapsulated by Major General John Sedgwick (Union Army, American Civil War, 1887) with his now famous last words: 'They can't hit an elephant at this dist …'[22] If Major General Sedgwick had paid attention to his team's information, checked his assumptions, and then ducked, he may very well have avoided the incoming sniper shot. At its simplest, learning involves an individual gathering new information or skills, and then integrating and synthesising the new knowledge into their established knowledge or skills.[23] Individual learning also includes the learner seamlessly incorporating the new skill or knowledge into the learner's repertoire of responses. When seen as a simple aggregation of individual learning, team learning appears entirely unproblematic.

In an intensely competitive environment such as war, maintaining the status quo requires continuous improvement, and this issue is known as the 'Red Queen problem'.[24] Referring to Alice in Wonderland's need to run fast to stay on the chess board, the Red Queen problem points to the necessity of working to maintain an even position in a contested environment. This is an important point: in a competition, the absence of learning will lead to defeat. An example of the Red Queen problem was LTCOL Cameron's observation about the predictability of Australian tank training when deploying to Vietnam War.[25] Similarly, the Red Queen problem also occurs in competitive sport – for example, Olympic cycling. In 2002, the British cycling team had had minimal success in its 79-year history, with only one gold medal in that time period. Six years later, at the Beijing Olympics, the cycling squad won

seven out of the 10 gold medals available in track cycling, and did so again at the 2012 London Olympics.[26] How? The British Olympic track cycling team leader realised that, while cycling is a technical and equipment-based sport, the winning edge they sought could not be achieved in a single, substantial technological leap.[27] Instead:

> *It struck me that we should think small, not big, and adopt a philosophy of continuous improvement through the aggregation of marginal gains. Forget about perfection; focus on progression, and compound the improvements … We searched for small improvements everywhere and found countless opportunities. Taken together, we felt they gave us a competitive advantage … We hired a surgeon to teach our athletes about proper hand-washing to avoid illnesses during the competition (we also decided not to shake hands during the [Beijing] Olympics) … We brought our own mattresses and pillows so our athletes could sleep in the same posture every night.*
>
> *Perhaps the most powerful benefit is that [focusing on finding improvements] creates a contagious enthusiasm. Everyone starts looking for ways to improve. There's something inherently rewarding about identifying marginal gains – the bonhomie is similar to a scavenger hunt. People want to identify opportunities and share them with the group. Our team became a very positive place to be.*
>
> *One caveat is that the whole marginal gains approach doesn't work if only half the team buy-in. In that case, the search for small improvements will cause resentment. If everyone is committed, in my experience, it removes the fear of being singled out – there is mutual accountability, which is the basis of great teamwork.*[28]

The British Olympic track cycling leader's final point needs emphasising: looking for learning became a team expectation, a norm, and something they all did.[29] In this case, learning was not something that only their leader did, or that only occurred during a formal post-competition review; nor did they just do 'what they had always done'. It is this process of team learning that I was interested in. Specifically, I focused on understanding when and where Australian Army teams showed a shared sense of learning.

What Stops Australian Army Teams from Learning?

So, if team learning is so simple and useful, why don't we all do it all the time? The answer is that team learning is not as unproblematic or straightforward as it first appears. While evidence shows that many factors affect how teams learn, one aspect in particular has been shown to consistently inhibit team learning: namely, hierarchical gaps or a power disparity.[30] At its simplest, a disparity in power differentiates those who are able to make decisions, influence outcomes and control behaviour, compared to those who do not. More precisely, power can be defined as the control over valued resources (which includes physical, economic and social resources).[31] Such disparities can be reflected in differences in job titles, salaries, authority, and access to information and resources. In the military, a hierarchical gap is a significant difference in rank or position between two individuals in the chain of command.

There is significant and consistent evidence from multiple scholarly studies that show how power differences generate a range of individual socio-cognitive effects, how these effects differ for those with and without power, and how these factors coalesce to inhibit a team learning processes. Evidence shows that larger hierarchical gaps typically inhibit critical team communications and information-sharing processes, which ultimately reduces team learning and team performance. However, there is also recent evidence that shows the specific team-level factors can flip the effect of hierarchical gaps from inhibiting to improving team learning and performance.[32] The team-level factors that help team learning include a collective perspective on team leadership, collective feedback, and specific contexts that reduce team conflict.[33] So overall, while hierarchical gaps typically block important team processes, in some specific circumstances and conditions, hierarchical gaps can also help team learning. Understanding when, where and how these specific conditions might apply in the Australian Army was the focus of my research.

It is well known that military institutions are 'deeply hierarchical' organisations,[34] and the psychological impact of the hierarchical differences can generate real and harmful impacts. For example, in 1996, two Black Hawk helicopters collided and 18 people died.[35] The board of inquiry[36] identified that the large hierarchical authority disparity, termed 'cockpit gradient', was a contributing factor in the accident. The Aircraft Accident Investigation Team report identified that the:

> *… steep Captain/co-pilot authority gradient between CAPT Bingley and CAPT 7 … the fact that the manoeuvre continues without what appeared to be any interaction from the co-pilot led me to suspect that the cockpit authority gradient affected his ability to communicate his concern … the difficulties … will be further compounded when a very junior pilot is expected to monitor the performance of a senior pilot and QFI such as Black One on 29 November 1996.*

Social and organisational power[37] disparity affects us at fundamental, physiological and cognitive levels. Evidence consistently shows that who, when and where we pay attention is determined by perceptions of power.[38] Research shows that increasing power reduces power holders' social attention, reduces recognition of subordinates' emotions, reduces trust, and increases the stereotyping of subordinates.[39] Power holders are also typically less motivated to investigate the state of less powerful subordinates' wellbeing. Power disparity directly affects subordinates' perceptions, attitudes and behaviours: subordinates are both deferential towards, and resentful of, their higher power team members. These results demonstrate that a hierarchical power structure inhibits many of the critical team processes and behaviours that underpin team learning, such as speaking up, information sharing, identifying mistakes and offering solutions.[40] Recent evidence shows that hierarchical power differences typically inhibit team learning unless specific factors occur which shift this relationship to a positive.[41]

While there is also consistent evidence that clear hierarchical structures help teams by clarifying roles and coordinating communications,[42] much of the evidence relies on individual-level analyses rather than evaluating the team as a whole.[43] In other words, the benefits of a hierarchical command and control structure are typically experienced by the commander or leader, since a clear team structure helps them to do their work.

At the same time, the costs of the hierarchical command and control structure are more diffuse and less visible because the inhibiting effects of the hierarchical gaps are experienced by the team members. For example, team members are less likely to speak up about emerging problems when they see a greater power/hierarchical gap between themselves and their team leader. At the same time, the leader is experiencing the benefits of clear team command and control structure. Over time, in teams with larger hierarchical gaps, more problems emerge and are less likely to be dealt with in the team, which ultimately inhibits the team's learning and performance. This example aims to show that both the negative and positive aspects of Army's hierarchically structured command and control can occur simultaneously: hierarchical command and control structures can and do provide an individual-level benefit and, at the same time, can inhibit a team's performance. Further, the individual-level advantages of hierarchical command and control structures should not be assumed to lead to whole-team-level benefits. In other words, the role clarity and communication characteristic of Army's hierarchical command structures is a necessary but not sufficient condition for team learning and performance. This raises the question: when can hierarchical teams learn?

When Do Hierarchical Teams Learn?

Recent research shows that while hierarchical gaps have a typically negative effect on team outcomes,[44] including team learning,[45] there is one crucial factor that can shift the negative into a positive: namely, a team context. For example, when teams and individuals focus on the collective level (i.e., the 'we') rather than on the individual level (i.e., the 'me'), team learning and performance improves. Specifically, recent thinking around the impact of power disparity in teams has pointed to the vital role of team conflict and cohesion in shaping the consequences of hierarchy for team outcomes.[46] Consistent evidence is emerging that increasing prosocial or collective perspectives within hierarchical teams, either through collective feedback or a leader's collective value, generates a positive effect from hierarchical teams.[47] In other words, power differences within teams do not inevitably lead to poorer team outcomes; instead, poor team outcomes occur in hierarchical teams where leaders are seen to be serve themselves rather than serving their team.[48] Similarly, where team leaders are seen to serve the team rather than themselves (i.e., the 'we' rather than the 'me'), hierarchical teams can outperform other types of team structures.

Australian Army Teams: Hierarchy, Egalitarianism and Deployment

Teams are core to the Army's capability to generate force. This statement will not surprise any Australian soldier. What might be a surprise, however, is the driving factors that improve team learning in the Australian Army. Specifically, Army teams learn best when there is a shared sense of psychological equality (or egalitarianism).[49] A shared sense of egalitarianism is not merely nice to have; instead, this shared team climate directly improves Army teams' capacity to learn faster and better. In arguing for a shared sense of psychological equality, I am *not* arguing for actually flattening the Army's real hierarchical command structure. On the contrary, my analyses showed that a team's greatest gains in learning processes were within teams with the largest spread of ranks *and* with a sense of psychological equality. The critical point is that, even within the same rank structure across teams, Australian Army teams can and do vary in their degree of psychological equality. It is this shared sense of egalitarianism, in the presence of real rank differences in teams, which directly supports and enables team learning.

The research showed that each Australian Army team can be characterised as having a different degree of shared psychological equality, over and above each individual's perceptions.[50] Consequently, quantitative follows qualitative evidence showing that the Australian Army is not a monolithic cultural whole. Instead, Army teams differ significantly in shared sense of norms, expectations, processes and practices (particularly in terms of information sharing, identification of mistakes and provision of potential solutions). This then raises questions about what, if any, differences these team environments make. What makes some Australian Army teams more open to psychological equality and learning, when others are less so?

What Drives Team Learning?

Overall, a shared sense of psychological equality enables team learning in the Australian Army. Further, Australian Army teams reported an increased sense of psychological equality (or egalitarianism) when they (i) experienced more deployments *and* (ii) had a greater spread of ranks/higher degree of hierarchy within a team.[51] This result is ***not*** merely a matter of deployment leading to improved team learning;[52] nor was it only that teams made up of higher ranks had improved team learning. A more nuanced process

was occurring: teams with a greater spread of ranks[53] *in the presence of* more deployments *generated* a greater shared sense of psychological equality. In contrast, teams more similar in rank, so less hierarchical, even when experiencing a similar number of deployments, demonstrated less shared psychological equality and, therefore, less team learning. Further, hierarchical teams with fewer or no deployments showed the lowest levels of egalitarianism.

Importantly, and somewhat counterintuitively, more deployments did *not* directly improve team learning. Instead, analyses showed that deployments only shifted team perceptions towards a shared sense of psychological equality when there were more rank differences in the team. So, what might be happening? Recent research shows that the typically negative influence of power differences shifts in response to team context. For example, when team leaders demonstrated a more collective perspective (that is, high-power leaders were seen to serve the team rather than serve themselves), teams had less conflict and improved performance. Essentially, the common theme is that team context matters and, in particular, leaders' practices and approaches, as well as team context, are critical to support and enable team learning.

Deployment Shaping Team Learning through Psychological Equality

When ChatGPT was asked, 'What psychological effects does deployment have on soldiers?', it provided a summary of only the harmful psychological effects deployment has, including post-traumatic disorder, depression, anxiety, substance abuse, insomnia, relationship problems and adjustment problems.[54] Yet now we are learning that deployment can also have a positive effect – that is, 'post-traumatic growth'[55] which occurs alongside the damage. Without diminishing the impact of soldiers' negative deployment experiences, deployment can also prompt sense-making and sense-breaking, and thereby trigger learning and growth. Current thinking shows that Australian Army teams (and team members) learn when on deployment. For example, O'Toole and Talbot[56] discussed social learning in the Australian Army. They observed:

> *Most participants acknowledged that operations/deployment provided them with their most powerful learning experience. Operational experience [deployment] was regarded as the 'pinnacle' in terms of learning, offering the 'ultimate' learning experience.*

> *Similarly, participants in an Army Learning Organisation study reported that the learning while on deployment was 'more real' than in barracks: 'In [location] when I went to plan an operation … we were running that ourselves, planning it and running it, and then we actually got to see what the benefits were because there was a final result at the end of it and it was real'.*

While it may be easy to conclude that 'deployment simply drives teams to learn', my research shows that the reality is more nuanced. I compared the relative effect of deployments on team learning, and found that deployment by itself was insufficient to trigger team-level learning in all teams, all the time. Instead, what was also needed alongside deployment was a team environment where team members saw themselves, their roles and their contributions as being respected and valued, regardless of rank (defined as psychological equality or egalitarianism). In other words, it was only in those teams that deployed with a range of ranks within the team, which typically generated a greater shared sense of psychological equality, which in turn enabled team learning. Quantitative statistical modelling[57] untangled the nuanced relationship between team ranks, deployment, a shared sense of psychological equality, and team learning. In summary, deployment, in and of itself, was not sufficient for team learning to always occur; however, it was a necessary precursor to enabling team learning within hierarchical teams. Hierarchical teams did learn more after deployment, but *only when* team members re-evaluated their thinking around ranks, roles and expectations via their shared sense of psychological equality.

Learning-Oriented Leadership

To identify practical recommendations that enable team learning, I investigated the extent to which three different leadership practices predicted an individual's sense of psychological equality and team learning. Specifically, I compared the relative impact of learning-oriented leadership, transformational leadership and transactional leadership on a sense of psychological equality, and finally on team learning.[58] Learning-oriented leadership[59] was found to generate a greater sense of psychological equality, as well as positively predicting team learning, compared to the more familiar transformational[60] or transactional[61] leadership styles.

While much attention has been paid to transformational leadership within the Army, little attention has been paid to understanding how learning-oriented leadership influences teams and individuals, either directly or indirectly. Overall, the results showed that learning-oriented leadership had twice the positive impact of transformational leadership in generating psychological equality. For team learning, learning-oriented leadership was considerably more important, by almost a magnitude of 10, compared to transformational leadership. The results showed that learning-oriented leadership led to improved psychological equality and was far more important than transformational leadership style to generating team learning.

Rank had different effects on psychological equality and team learning. For team learning, rank had a direct and positive effect.[62] So the higher their rank, the more likely it was that the individual felt the team was learning. A senior officer saw more team learning than a private soldier. Interestingly, rank had no direct effect on psychological equality.[63] In other words, a sense of psychological equality was not dependent on an individual's rank: a private soldier was just as likely as a senior officer to feel psychologically equal. The pattern of results showed that rank did not directly determine psychological equality; instead, learning-oriented leadership (and, to a lesser extent, transformational leadership) determined psychological equality, which in turn enabled team learning. Typically (but not invariably), higher ranked individuals experienced more learning-oriented leadership, and so were more likely to see team learning.

Evaluating the effect of deployment on psychological equality and team learning showed that deployments directly and positively affected individuals' perceptions of psychological equality. This finding holds true even when team-level deployment does not directly improve team-level shared psychological equality and team learning. The positive effect of deployments upon individuals' perception was significant, even when the learning-oriented leadership style was taken into account. Further, when looking at the effect of deployments on team learning, the results showed that psychological equality was the mechanism through which deployments positively influenced team learning. These results indicate a complex relationship between rank, deployment, leadership style and team characteristics in team learning. In simple terms, learning-oriented leadership directly affects individuals' psychological equality, which in turn enables individuals' team learning, and this relationship holds for all ranks.

Recommendations

While the quantitative modelling analysed for this paper drew upon deployment experience, its relevance extends more broadly. Specifically, the studies show that the real hierarchical differences found in Army chain of command do not inevitably hinder team learning. Notably, Army can take practical steps to reduce a key structural and organisational blocker to team learning. The research provides an evidence base for Army leaders and trainers to develop programs or mechanisms to improve psychological equality and team learning in the absence of deployment. Identifying necessary preconditions for team learning in the Australian Army supports practical recommendations, which will ultimately help the Australian Army achieve its aim of 'Accelerated Warfare'. The following recommendations are provided in support of this effort:

Recommendation: Inculcate Learning-Oriented Leadership Practices

Army leadership training doctrine and delivery centres (e.g., Royal Military College, Australian Defence Force Academy, and Australian Defence College) should review their current practices to emphasise and highlight the utility of applying learning-oriented leadership practices. An approach may be to build a competency-based rating scale anchored in demonstrated behaviours (see list below). Ideally, the review would generate criteria for demonstrating learning-oriented leadership when considering rewards, promotions and celebrations. Other mechanisms to reinforce learning-oriented leadership practices could be implemented through Defence's EMPower mentoring and coaching program, as well as via short courses on Campus for self-guided learning that outline the specific behaviours and practices. Examples of successful and – even more importantly – unsuccessful team learning might be identified and disseminated using the Australian Army Research Centre (AARC) seminar series. These measures could be supplemented by Army leaders sharing their own learning journeys, as Thorburn[64] did on Army's *The Cove* website. Specific activities that mark learning-oriented leadership include the following:

- Share information quickly and easily.
- Regularly invite team members' views and contributions – e.g., 'catch the team doing something good' – and reward desired behaviours or patterns in teams and individuals.

- Be clear about what failure is blameworthy versus praiseworthy:
  - blameworthy failure is, e.g., an individual choosing to deviate from a prescribed practice or process;
  - praiseworthy failure is, e.g., testing or experimenting to understand a complex environment or process better.
- Look for opportunities to learn for yourself and your team, and set an example when you need to learn or have made a mistake.
- Reward individuals in front of the team when they share a problem or spot an error.
- Formally and informally analyse failures and share the lessons learnt, as a team.

Recommendation: Identify the Team-Level Benefits of Shared Deployment and Build on the Benefits

If it has not already occurred, team-level benefits of deployments should be undertaken as part of the lessons learnt processes undertaken by the Army Knowledge Centre. The results of this effort could inform the collective training doctrine that underpins the Army training continuum. Building on the positive experiences emerging from deployments at the team level, as well as considering the damage and adverse effects on individuals, will help support greater team learning. To reinforce learning, Campus could be developed to deliver refresher training on the elements that make up team learning. Seminars exploring this topic could also be developed and disseminated via the AARC seminar series and through other more informal mechanisms such as The Cove for personnel's reflections on this topic. This recommendation becomes more important when the deployment rotations are winding down or changing.

Measures that are proposed under this heading are:

- Identify the ways in which deployments changed and improved teams' expectations, processes and procedures. If not already done, incorporate the changed expectations and processes into team standard operating procedures. Capture the benefits and learning already experienced within teams who have deployed to share with new starters/recruits.

- When teams do not (or are not likely) to deploy, invest time and effort into intense team-level training which simulates shared threats and hardships, for a sustained time period. This will give team members opportunities to re-evaluate their own roles and responsibilities, identify the collective perspective, and provide sufficient feedback to shift perspectives of team members' power and roles.
- Increase the range of ranks within teams when on deployment or during training opportunities. This will give all ranks the opportunity to learn respect for each other's roles within the team, identify interdependencies, and see how respect helps the team perform.

Recommendation: Instil a Shared Sense of Psychological Equality within Army Teams

This recommendation is more complex to achieve than the preceding proposals. One option may be for the Army Knowledge Centre and training institutions to distil specific examples of what a shared sense of psychological equality would look like in a range of contexts, and to draw illustrative boundaries about what it is and how it looks. Such efforts would need to acknowledge the precedence of the formal chain of command in a military context. The doctrine, examples or use cases could then support respect for all team members. Importantly, such efforts could align with the covenant between Army members and the nation which provides that 'I believe in trust, loyalty and respect for my Country, my mates and the Army'. Inculcating such respect would also align with other Defence initiatives such as One Defence and similar programs.

In implementing this recommendation, respect should be emphasised because respect for all ranks and roles – regardless of rank – is a definition of psychological equality. Conceptually, respect can be owed (e.g., by virtue of rank) and can be earned (e.g., by way of competence and contribution during deployments or, alternatively, during training simulations).[65] Owed respect helps us feel included and valued as part of the team and organisation, while earned respect recognises specific qualities or can be achieved through the following measures:

- Establish a firm baseline of owed respect for all personnel. Every soldier should feel that their dignity is recognised and respected. This is especially important for soldiers of more junior rank. Respect is infinite; giving owed respect is not a zero-sum game.

- See respect as a time saver, not a time waster. Improving respect is a function of *how* you do what you are already doing. Increasing the respect in team relationships does not add more time or effort into your current communication within your team (e.g., being polite).
- Identify how respect is earned within the team; the specific tasks or roles that earn respect vary by team, role and function.
    - Common ways for leaders to show respect are to delegate important tasks, to remain open to advice, and to publicly back your staff and teammates in critical situations.
- Think about the mix of owed respect and earned respect within your team. Is the current mix appropriate to generate a shared sense of egalitarianism? Is earned respect generated for appropriate or beneficial behaviours within the team?
- Know when efforts to be respectful go wrong; if efforts are inconsistent or haphazard, soldiers will see such attempts as manipulative or disingenuous. If a supervisor or superior officer only offers respect in the presence of others, then their words or actions will appear to be insincere.
- Make sure you give earned respect when it is deserved. If praise is given for undeserving actions, it will appear to be tokenistic and will be counterproductive.

Conclusion

This paper offers a new and nuanced understanding of how a fundamental Army characteristic, hierarchical command and control structure, can become an enabler of team learning. Broadly speaking, hierarchical teams learn best after deployment, with learning-oriented or collective-focused leadership, because these factors help teams to generate a shared sense of psychological equality. My proposition is that learning-oriented leadership and deployment are team contextual factors that may let team members re-evaluate their assumptions and perceptions about power differences in their teams. In turn, this sense-making and breaking can generate a shared sense of psychological equality, finally enabling team learning. This work extends our current understanding of how to develop teams, individuals and leaders, a key theme within the AFRF.

Based on the analyses, recommendations are made to improve key factors that enable team learning. These include increasing the degree – or practice – of learning-oriented leadership, and improving a shared sense of psychological equality. Psychological equality may be enabled through two mechanisms: (i) identify the positive and shared experience of deployment effect on teams, and replicate it during training, and (ii) instil a sense of respect in Army teams. Respect is a critical and fundamental component of psychological equality. While the recommendations offer a way forward, any such effort should include evaluation and review mechanisms to ensure that the planned actions have the expected outcomes. This is particularly important when grappling with abstract concepts such as shared psychological equality, learning-oriented leadership and respect.

Learning-oriented leadership practices or training experiences, which shift team members' expectations and perceptions of rank and power, improve team learning, both directly and indirectly. Ultimately, Army team learning will be enabled by learning-oriented leadership and a robust and shared sense of psychological equality based on respect. Teams that learn will better identify problems, share solutions, develop and implement improvements and find that 1 per cent competitive advantage across the many systems, equipment, materiel and procedures in Army. Taking active measures to achieve this outcome is critical, particularly if the Australian Army slows its operational tempo, thus reducing the opportunity for its members to experience deployments. Regardless of whether the Australian Army is postured for expeditionary operations or for national security priorities closer to home, however, the need for effective team learning is acute if the Australian Army is to accelerate its warfighting capabilities.

Army Commentary

Dr Chris Stothard's paper suggests the Australian Army can better enable team learning in hierarchical environments through the generation of a learning-oriented leadership style, and a shared sense of psychological equality through deployments.

The evidence produced argues hierarchal teams inherently inhibit team learning but these trends are countered by Army's approach to teaming for deployments. Human and environmental drivers influence the context of teaming and the chances of success; leadership is an integral part of any

team, and the reader is encouraged to differentiate between leadership and hierarchical command structures. Not all leaders are commanders, and not all commanders are leaders.

As an organisation, we have made enormous progress in how we 'red team' our plans and subsequently capture lessons learnt. This paper highlights the importance of these processes in team learning in the context of operational deployments, and a sense of shared psychological equality that stems from this endeavour. Substituting the deployment for any learned experience – where there is pressure to succeed, and defined metrics for success – allows us to consider a wider range of scenarios.

From an organisational perspective, the author's recommendations already form a part of *Army's Contribution to Defence Strategy*, in particular Army's culture of Good Soldiering. However, some of the author's assertions challenge the status quo – in particular, formal leadership training delivered by the ADF training continuum. Therefore, I encourage the reader to consider their own leadership style and approach to learning when reading this paper.

Developing people capability is a continual yet critical challenge. Army has never been more diverse than it is now and there are multitudes of scenarios where we rapidly formulate 'teams of teams'. Dr Stothard's paper evokes notions of the role of leadership and command structures in team success. It is up to us to consider appropriate frameworks to enable team success.

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About the Author

Dr Chris Stothard is a computational social/behavioural scientist and recent PhD graduate from the University of Adelaide. In 2021, Dr Stothard was awarded a University Medal and Dean's Commendation for PhD excellence for the thesis 'What Helps Team Learning? Egalitarianism, Hardship, and Leadership in Australian Army Teams'. Dr Stothard's research draws together multilevel statistical modelling, systems thinking, applied social psychology, management/organisational sciences, and data science to unpick the nuanced relationships of factors which enable team learning in hierarchical teams.

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The Design and Implementation of a Youth Learning Framework within an Ab Initio Officer Training Academy

Brad Kilpatrick

Introduction

Although there are many pathways to becoming an officer in the Australian Defence Force (ADF), this essay focuses specifically on the Australian Defence Force Academy (ADFA) located in Canberra. ADFA's Charter is:

> *To provide Australian Defence Force Midshipmen and Officer Cadets, and other international partners, a balanced and liberal university education within a military context and environment; positively develop their character, leadership and professionalism; and enable them to build a cohort of joint-Service multi-national peers who will grow and mature together through careers within their parent Service and national Defence Forces.*

The Royal Australian Navy, the Australian Army and the Royal Australian Air Force all manage the recruitment, training and appointment of junior officers slightly differently. Accordingly, ADFA works in conjunction with the three Services to provide the complete officer training continuum. Navy midshipmen arrive at ADFA having already completed six months of naval training at HMAS *Creswell* followed by an additional six months of work experience in the fleet. By comparison, the Army and Air Force

officer cadets generally arrive at ADFA immediately after completing their high school education. Upon completing ADFA, Navy graduates are promoted to Sub-Lieutenant and commence Primary Qualification (PQ) training, Air Force graduates are promoted to Pilot Officer and commence specialisation training, and Army graduates become Staff Cadets and complete an additional 12 months of leadership and tactics instruction at Royal Military College, Duntroon, before being promoted to Lieutenant and commencing corps-specific training. Although the pathways to and from ADFA are slightly different depending on the Service, the common factor is that trainee officers are generally 17–23 years of age.

In the 37-year history since ADFA opened in 1986 until the time this paper was written in 2023, the ADFA undergraduate program has successfully graduated 8,154 personnel and the University of New South Wales at ADFA has maintained the highest completion rate of any university in Australia. Unfortunately, these results are not the only aspects of ADFA's reputation that are widely known or reported. Throughout ADFA's period of operation, there have been several behavioural incidents that have resulted in significant media coverage and the instigation of formal reviews into the Academy, and in some instances the ADF more broadly. Of particular note, ADFA has been the subject of the following reviews:

- *Report of the Review into Policies and Practices to Deal with Sexual Harassment and Sexual Offences* by Bronwen Grey, 1998 (the Grey Review)[1]
- *Report of the Review of Australian Defence Force Academy Military Organisation and Culture* by CDRE Bruce Kafer, RAN, 2010 (the Kafer Review)[2]
- *Report on the Review into the Treatment of Women at the Australian Defence Force Academy: Phase 1 of the Review into the Treatment of Women in the Australian Defence Force* by Elizabeth Broderick, 2011 (the Broderick Review).[3]

The Grey Review highlighted significant issues with culture, and unacceptable behaviour within ADFA including sexual harassment, sexual offences and bullying. It also identified unhealthy approaches to the consumption of alcohol. Despite recognising the potential inexperience and immaturity of the midshipmen and officer cadets, the Grey Review advocated an adult learning environment. The Kafer Review identified that, while the extreme

cultural deficiencies identified in the Grey Review were no longer prevalent at ADFA, 'low level forms of intolerance, aggression and negative social behaviours' continued to exist, as did a culture of binge drinking. However, the Kafer Review also advocated the continuance of an adult learning environment. The Broderick Review agreed that the extreme deficiencies of the Grey Review period were no longer present; however, it identified that there was a culture of widespread low-level sexual harassment, insufficient supervision and a cumbersome complaint process.

Despite many reviews from 1998 to 2011, and enormous effort to try to change the culture of ADFA, to some degree the issues of unacceptable behaviour and problems with motivation among trainees remained. In 2011, ADFA began to question whether the true problem was the 'culture' of ADFA as suggested by the previous formal reviews, or actually with the trainees' relatively low level of maturity. Questions were also being asked about the compatibility of applying an adult learning environment to a youth demographic. The aim of this paper is to describe ADFA's analysis, design, and implementation of a youth learning strategy during the period 2011–2013 and to draw some conclusions for the contemporary professional military education continuum.

Analysis of Brain Growth, Development and Function

In 2011, ADFA commenced detailed research into the brain growth, development and function of a youth demographic to determine whether the emerging science would support the premise that the trainees should be recognised and treated as adults as suggested in the Grey and Kafer reviews.

This research into brain growth and maturation clearly showed that, although grown to full adult size, the brains of youth in a 15–25 year old demographic function differently from the brains of children or adults. Based on an examination of the neuroscientific literature, youths have difficulty with impulse control, empathy and higher decision-making, such as understanding second- and third-order effects.[4] This is because their prefrontal cortex, responsible for these functions, has not finished the myelination process that speeds the communication between neurons. In contrast, the amygdala is fully myelinated in youths. The amygdala is responsible for emotion, threat detection and activating the body's 'fight or flight' response. Because it is fully myelinated, the amygdala can send

messages much faster than the prefrontal cortex and 'hijack' the decision-making of a youth whenever emotion is involved. It was also identified that youths have an exaggerated response to reward stimuli[5] and that they favour extrinsic motivation rather than intrinsic motivation. Equally, they prefer immediate gratification[6] rather than long-term rewards. It was also suggested that 'status with their peers' is one of the most highly valued rewards among youths.[7] Independent research from both behavioural psychology and neuroscience also identified that the risk-taking behaviour of youths increases in the presence of their peers.[8] This phenomenon appears to be much more significant than 'peer pressure' and seems to be linked to the activation of a part of the brain's reward mechanism, the ventral striatum. The ventral striatum activates in youths who are in the company of their peers and rewards them with dopamine for participating in novel activities. Reviewing educational psychology also suggested that supportive social environments are vital for motivation and effective learning.

The Kafer Review of 2010 identified a specific behavioural problem associated with the high incidence of lying among midshipmen and officer cadets at ADFA. ADFA's analysis of the research into youth brain development provided a potential explanation. Not unsurprisingly, most of the lying occurred in relation to midshipmen and officer cadets attempting to avoid taking responsibility or being punished for things that they may have done wrong. The military values integrity as one of the most important characteristics of its leaders, because they have to be trusted with the lives of subordinates, expensive military equipment, and the secrets of national security. Accordingly, lying to avoid potential punishment is regarded as a significant failing within an officer training establishment; demonstrating not only a lack of integrity, but also a lack of courage.

Understanding the brain function of a youth helps explain the prevalence of lying behaviour in an establishment like ADFA. Sight, sound, touch and taste travel to the thalamus within the brain first and then to the cortex and amygdala at the same time. The amygdala conducts a threat assessment and, if required, engages the body's fight or flight response. In the youth brain, the amygdala is fully myelinated; however, the prefrontal cortex, responsible for judgement and higher thought, is not. Therefore, the amygdala can send and receive messages much faster than the prefrontal cortex, in essence hijacking rational decision-making in response to a detected threat. Although the fear might be perceived and not 'real', from a

youth perspective there is much to be fearful about at ADFA. It is generally the trainees' first time away from home and their parents; they are in an unfamiliar military environment; and they have to contend with the fact that the *Defence Force Discipline Act 1982* can result in significant punishments and the potential termination of their career before it has even started. Within this environment, the ADFA staff perceived it highly likely that youths did a great deal of their decision-making with their amygdala, and that this might explain why the incidence of lying was so high.

The research conducted by ADFA staff into youth brain growth, development and function and into educational psychology supported a conclusion that the adult learning environment advocated by the previous reviews into ADFA was inconsistent with the realities of the midshipman's and officer cadet's cognitive development. In response, ADFA staff started to investigate alternative approaches and learning strategies to those of adult learning environments.

Adult Learning Environment

Malcolm Knowles's (1980) model of andragogy is based on six principles of adult learning:

1. That adults need to know the reason for their learning
2. That adults could draw upon experience to aid their learning
3. That adults need to be involved in planning their education and evaluation
4. That adult readiness for education was linked to changes in their social roles
5. That adults want to apply new learning in problem solving immediately
6. That adults provide their own motivation for learning from internal factors.

These six characteristics are based on the premise that 'adults' are people who have the authority, the judgement and the pre-existing knowledge and experience to make their own good decisions about what they need to learn (curriculum planning), why they need to learn it (intrinsic motivation), how they should go about learning (instruction) and whether they have mastered it sufficiently (evaluation). A relatively cursory analysis of these six factors identifies some inconsistencies between andragogy and the characteristics of youth brain function and behaviour identified during the

previous analysis. Perhaps the most significant issue is that youths have limited intrinsic motivation, and accordingly are potentially less likely to provide their own readiness or motivation for learning.

The trainees at ADFA have limited experience that they can use to aid their learning. Their prior participation in primary and high school education techniques generally means that they lack the knowledge or experience to participate in the planning and development of their own tertiary-level education and evaluation. Further, much of their new learning cannot be applied until after they graduate, are promoted as officers, and complete their initial single-service specialisation training. Depending on their service and specialisation, this process may take anything from three to six years after they first commence training. Due to the incompatibility of the youth mind with characteristics of adult learning, ADFA staff proposed that a different approach, based on youth learning factors, may be more effective.

Youth Learning Environment

Youth Learning Factors. Based on the research that was conducted by ADFA staff into youth brain growth, development and function, and elements of educational psychology, ADFA staff developed the following youth learning factors as the foundation of a revised learning framework:

1. 'Motivation' is the key to learning and it is only achieved when students value what is being taught, have a high expectation of success, and are provided with a supportive environment.[9]
2. Youths favour short-term extrinsic rewards, and in comparison to children and adults they have an exaggerated pleasure response to things they find rewarding.[10]
3. Youths place significant value on status with their peers. Losing peer status is a significant threat that can paralyse learning; gaining peer status is significantly rewarding.[11]
4. Prior learning based on stereotypes and incorrect facts is a barrier to new and correct learning. Incorrect prior learning can be persistent, even in response to positive corrective action.[12]
5. Youths have difficulty considering second- and third-order effects; they lack impulse control and an understanding of risk; and they are drawn towards novel activities, particularly in the presence of their

peers.[13] Accordingly, the application of consequences or punishment for bad behaviour is likely to be less effective than the preventive mechanisms associated with supervision, guidance and mentorship.

6. Supportive and controlled emotional environments promote youth learning, and any emotion can hijack rational thought.[14]
7. Youths have a reduced capacity for empathy[15] and accordingly have difficulty viewing a situation from any perspective other than their own. Learning should be shaped from their own perspective, not how it 'feels' to be someone else.
8. Physical fitness improves cognitive ability and mental health.[16]
9. Youth behaviour is not necessarily predictive of future adult performance. Much like physical maturity, myelination of the brain is a biological process that cannot be accelerated through education. However, establishing the right foundations and neural pathways during youth may shape future adult behaviour.

Youth Learning Strategies. Based on these Youth Learning Factors, during the period 2011–2013 the following Youth Learning Strategies were implemented:

1. Introducing grading and assessment for military subjects to generate extrinsic motivation. This measure acknowledged that adolescent midshipmen and officer cadets were unlikely to be motivated by the attainment of 'competence' or by intrinsic value alone.
2. Continuance of Commandant and Deputy Commandant Commendations for military and academic performance. Presented as a badge to be worn on the trainees' name tags, these commendations represent an extrinsic, short-term reward that elevates peer status and encourages the achievement of excellence, not just a pass. In 2011, 80.8 per cent of trainees had received an academic or military commendation.
3. Linking local leave entitlements to performance, to provide extrinsic motivation.
4. Encouraging staff to provide positive observation reports and public praise for demonstrations of appropriate behaviour. This recognises that rewarding the behaviour you want to see is more effective with youths than punishing the behaviour you do not want to see.

5. Developing training programs designed to remediate incorrect prior learning associated with military stereotypes, and realignment with the correct values of the ADF.
6. Increasing trainees' expectations of success (to increase motivation). If a student is failing to meet the required standard or has a low expectation of success, the underlying problem is likely to be a lack of ability, a lack of effort, a lack of focus, incorrect prioritisation, personal problems, or health problems. In this regard, the root cause of problems can largely be placed into two categories: those within the student's ability to control, and those outside the student's ability to control. Those issues that are outside a student's ability to control, such as lack of ability, personal problems and health problems, require an administrative approach to provide a support mechanism such as additional tuition, a change of course, or medical or philanthropic support. Those problems that are within the student's ability to control may require a different strategy that recognises the strengths and limitations of the youth brain. Youths who are suffering from a lack of self-discipline around work or study requirements may require additional guidance and mentorship to reinforce their personal discipline and help them overcome the limitations of their brain's immature reward mechanism. Leave limitations, enforced study periods and extracurricular restrictions may be effective mechanisms to provide a scaffolding around better performance and an increased expectation of success.
7. Encouraging staff to provide a supportive environment. In comparison to other universities, ADFA has arguably one of the best networks of support personnel of any residential college in Australia: chain of command, after-hours Duty Officers, medical officers, physiotherapists, psychologists, legal officers, religious staff, and equity advisers. However, the Grey, Kafer and Broderick reviews all refer to an issue of 'us and them' where trainees are resistant to raising issues of concern with the staff. In spite of all the support mechanisms available, the trainees did not seem to want to use them, and accordingly may have felt unsupported. The Grey Review in particular noted that the trainees viewed the staff as being 'evaluators, disciplinarians and judges' and likened their feelings to a 'prisoner's view of the prison staff'.[17] The youth view of the military staff as gaolers may be influenced by their brain function. Due to the lack of myelination in the prefrontal cortex, youths have a diminished capacity for empathy, or the ability

to view a situation from someone else's perspective[18] – in this instance the views and intentions of the military staff at ADFA. An approach that focuses on coaching and mentorship rather than consequence and punishment would help to reduce the threat the students associate with the staff and may increase their desire to access support.

8. Implementing a 'road map to recovery'. In many situations, the punitive actions associated with military administrative and disciplinary action can detract from the trainees' ongoing expectation of success and accordingly influence their motivation to learn. An alternative or complementary approach is to ensure that every youth being disciplined is provided with a 'road map to recovery'. This road map to recovery would ensure that youths can still be disciplined and held to account through the removal of privileges, status or responsibility, but would ensure that they are supported with a process that will return them to their original status (or close to it) through a series of attainable positive actions or waypoints along the way. This approach promotes a sense of value attributed with each of the waypoint events, and correlates with the youth brain's exaggerated response to reward stimuli, and the value attributed to both extrinsic rewards and peer status. From one negative behavioural event there could be multiple positive performance waypoints required on the road map to recovery. These positive performance waypoints would provide a correlation between positive behaviour and reward, produce a scaffolding for neural pathways that would influence future behaviour, and reinforce the existence of a supportive environment.
9. Modification of the military questioning technique. The questioning technique taught to military instructors may be one example of a threat to peer status. In the ADF, instructors are taught a questioning technique based on 'question, pause, nominate'. This proposes the question, provides a pause for all trainees to consider the answer, and then nominates the person expected to provide the answer. Rather than asking for someone to volunteer an answer, this technique aims to ensure that everyone is paying attention and is suitably prepared for the lesson. Although this may be a suitable technique for testing rote-learnt information, it may be less effective for responding to questions requiring more cognitive effort or processing such as exploring the relationships between different concepts and

constructing original thoughts. Being 'nominated' to provide an answer to a complex question in group environment might be more threatening to a youth because they could perceive that they are being judged by their peers on their ability to think and their thoughts, rather than just their memory as may be the case in relation to rote-learnt information. A less threatening environment is to allow youths to discuss concepts in small groups and provide a group response. Being able to say 'we think …' instead of 'I think …' removes the threat associated with being personally judged and promotes a more supportive learning environment and greater classroom engagement.

10. Introduction of live-in Residential Advisors to provide a supportive environment and moderate behaviour.
11. Improved staff selection process (mentors, not disciplinarians).
12. Improved staff training in relation to adolescent learning.

Results

ADFA used an existing internal training review process to measure and validate the impact of applying its Youth Learning Strategies on trainees' levels of satisfaction and motivation. Using the online survey tool SurveyMonkey®, the internal training review was conducted biannually by trainee year level at the conclusion of each academic semester. The internal training review was structured with questions specific to each military subject. Trainees could enter a response on a Likert scale for each 'closed-ended' question. They were also invited to expand on their responses with additional comments in a more 'open-ended' fashion. The internal training reviews yielded large sets of both quantitative and qualitative data that enabled the conduct of time-series longitudinal analysis over the 2011–2013 implementation period. The following findings were supported by the analysis:

- Significant improvements in trainees' satisfaction and motivation
- Significant improvements in the test results for military subjects of an academic nature (there was little difference in the results for physical training, drill or weapons)
- Significant decrease in rate of infringements and Defence Force Discipline Act action.

Implications for Army

Although this paper has focused on the results of applying a youth learning framework within an ab initio officer training establishment, the findings have significant implications for Army and broader Defence environments. Analysis of Army's SERCAT 7 workforce data in 2021 revealed that 27 per cent of the trained force, and 79 per cent of the training force, was 25 years of age or younger. Accordingly, the application of youth learning and leadership strategies within Army and broader Defence may have significant benefits. ADF-P-0 *ADF Leadership* discusses the importance of 'understanding others' and describes the generic 'drivers of human behaviour'. However, *ADF Leadership* does not describe the different motivators of a youth demographic, or how certain environmental conditions can affect a youth workforce.

Good Soldiering states:

> *Our soldiers have strength of character. This is reflected in our ability to make ethical and moral decisions and be accountable. We do the right thing. We sustain our trust in each other and cohesion in our teams.*

While this is an excellent expression of cultural intent, research tells us that some of our soldiers and officers (27 per cent of the trained force and 79 per cent of the training force) have exaggerated response to reward stimuli; have difficulty considering second- and third-order effects; have reduced impulse control, empathy and understanding of risk; and are drawn towards novel activities, particularly in the presence of their peers. Optimising the potential of our younger workforce requires us to understand both the strengths and the limitations of their brain wiring. Leaders should help control the environmental conditions so as to minimise the likelihood of young soldiers making bad decisions, and help them learn from their mistakes through supervision, guidance and mentorship in preference to punishment. Although sometimes necessary, punishment should be considered a last resort after repetition of the same mistake. Good soldiering requires good leadership.

Conclusion

As a tertiary institution, ADFA has demonstrated an enviable academic record as the university with the highest completion rate in Australia. Unfortunately, several behavioural incidents in the early 2000s brought ADFA under the close scrutiny of formal reviews regarding institutional culture. Although the response to the 1998 Grey Review seemed to address and arrest the extreme cultural deficiencies of the time, elements of low-level unacceptable behaviour and inappropriate consumption of alcohol remained and were highlighted by the Kafer Review of 2010 and the Broderick Review of 2011.

From a new baseline of continued 'low-level unacceptable behaviour and inappropriate consumption of alcohol' in 2010, ADFA researched, designed and implemented a youth learning environment. Although it is impossible to prove that the application of youth learning strategies alone was responsible for improvements, there was sufficient evidence throughout the implementation period to suggest that the application of a youth learning strategy was able to improve the 2010 baseline, with a statistically significant improvement in satisfaction, motivation and military results, and a statistically significant decrease in unacceptable behaviour. ADFA continues to remain a more effective officer-training establishment due to the implementation of learning models that have been specifically designed to recognise both the strengths and the limitations of a youth demographic.

> *When we treated them like adults, they used the freedoms associated with an adult learning environment to behave like children. When we reduced their freedoms as a result, the trainees said 'you are treating us like kids'. When we started treating them like youths, their behaviour improved and they gained additional freedoms. 'Finally' they said 'you are treating us like adults'.*
>
> Chief Instructor ADFA, 2013

About the Author

Colonel Brad Kilpatrick is an Armoured Corps officer with regimental experience at 2nd Cavalry Regiment and B Squadron 3/4 Cavalry Regiment. He has considerable experience as a military instructor with postings to Royal Military College-Duntroon as a Military Instructor, Senior Instructor of War Fighting and Deputy Chief Instructor. He has also had postings to the Australian Defence Force Academy as the Commanding Officer/Chief Instructor and Deputy Commandant. He has had operational deployments to East Timor, Bosnia, Iraq and Afghanistan. Colonel Kilpatrick completed Australian Command and Staff College (Joint) in 2006. He has a Bachelor of Arts in Strategic Studies from Deakin University and a Masters in Philosophy from the University of NSW. The topic of his Master's thesis was *The Design and Implementation of Adolescent Learning Strategies Based on Cognitive Neuroscience and Educational Psychology*. Colonel Kilpatrick remains passionate about promoting positive leadership environments to optimise the performance and potential of young people within Defence, and the broader community.

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Australian Army Physical Training Continuum – Reducing Injury and Medical Discharge Rates

Micheal Abdel-messih

Introduction

In August 2017, national news headlines about Army recruitment standards caused a stir and led to many emotionally charged discussions across the country. These headlines included '"Political Correctness Gone Mad": Australian Army Told Not to Recruit MEN as Part of a Gender War to Push to Have More Women Soldiers',[1] '"PC Gone Mad": Army, Air Force, Navy Bans Men in Bid to Boost Women'[2] and 'Australian Army Reportedly Shuns Male Recruits in Favour of Women'.[3]

At that time, I was nearing completion of the Army's Subject One for Corporal course – a promotion course for Army's Private soldiers. At the end of her congratulatory address to my cohort, the course's Commanding Officer (CO) opened the floor for questions and feedback. The speed at which some of my colleagues' hands were raised spurred laughter from most of the audience. Seconds later, however, the mood was more sombre.

The CO invited one of the soldiers with a raised hand to speak. In reply, the soldier said something to the effect of, 'Ma'am, for the last 10 minutes or so you've reiterated that you hold us all to the same standard. But you don't.' Responding to the CO's request for clarification, the soldier added,

'If you hold us all to the same standard, then why do males and females have different fitness standards?' At this point, the Regimental Sergeant Major (RSM) addressed the soldier's remarks with words to the effect of, 'It's not true that we hold you to different fitness standards because males and females have different physiologies. So the standards we hold you to are, in fact, the same when we take into account these differences.' Although at the time I did not fully internalise what the RSM was saying, I intuitively agreed with him. However, I could also see the logic of my colleague's perspective.

At that moment, I found myself struggling with a dilemma. On the one hand, I agreed with my colleague's observation that the sexes are held to different fitness standards. This fact is evidenced by the Army's Basic Fitness Assessment (BFA), which imposes fewer repetitions of push-ups and sit-ups on female members, and provides them more time to complete the run/walk component of the test. On the other hand, I agreed with the RSM's explanation that men and women possess different physiologies and may therefore be held to the same fitness standards when these differences are accounted for.

At the start of 2018, I began making a series of enquiries of junior non-commissioned officers (JNCOs), senior non-commissioned officers (SNCOs), junior officers (JOs) and senior officers (SOs)4 about the purposes of the BFA and the Physical Employment Standard Assessment (PESA). My intent was to better understand and reconcile the points made by my course colleague and the RSM. To my surprise, there was very little consistency in the answers I received. When asked about the purpose of the BFA, some would say it is a minimum standard of physical fitness for ongoing employment in the Army. Others would say it is a minimum standard of physical fitness that ensures personnel employed by the Army are maintaining an acceptable level of overall physical health. Some explained that it was a strategy employed by the government to increase the number of female intakes into the Army.

When I enquired about the purpose of the PESA, some said it provides the best indication as to whether someone is able to meet the physical fitness demands of their job, while others argued that it was introduced to make it more difficult for females to enter into Combat Corps, as a counter to the BFA. Some respondents opposed the PESA because they believed that it greatly overestimated Army's job-specific physical fitness requirements.

It seemed that, in an effort to reduce my uncertainty, I had inadvertently magnified it.

In the absence of clarity among my fellow serving members, I sought answers in Defence policy and in any literature I could find on the subject. The purpose of this paper is to share my research findings and the conclusions I reached. My aim is to support better-informed conversations around this topic that can lead to positive outcomes for the Army and Australian Defence Force (ADF) as a whole.

Initial Findings

Since the BFA is a component of the Army Individual Readiness Notice (AIRN), understanding the purpose of the AIRN would be a reasonable place to start the research. Yet after reading the initial five paragraphs in the AIRN policy, I found it extremely difficult to overlook a number of conflicting statements. To understand the nature of this inconsistency, it is useful to consider the following three statements:[5]

> *[The] Army Individual Readiness Notice (AIRN) policy has been developed to ensure Army personnel maintain themselves at a base level of preparedness IOT [in order to] carry out lead up training for deployment on operations at short notice.*
>
> *…*
>
> *AIRN assists pre-deployment training during force preparation by providing a common start point and addresses Army's duty-of-care commitment by prescribing the baseline individual readiness standard to be achieved by Army personnel.*
>
> *…*
>
> *The purpose of AIRN is to maintain a baseline level of IR [Individual Readiness] within Army to ensure that Army personnel are capable of being deployed on operations at short notice.*

The first statement implies that the AIRN is, in itself, an inadequate standard for deployment on operations at short notice. In contrast, the third statement implies that the AIRN *is* an adequate standard to be deployed on operations at short notice – the exact opposite of the first statement.

According to the Australian National Audit Office, however, the AIRN provides 'a baseline of individual readiness … for members entering pre-deployment training'.[6]

So is this 'baseline' actually adequate for deployments on short notice? In my view, the answer depends on the type of operation under consideration. To understand how I reached this conclusion, it is instructive to examine the PESA in some further detail.

The PESA is intended to 'provide assurance [that] personnel have the physical capacity to safely perform the range of physically demanding tasks associated with their employment in Army'.[7] The PESA consists of four levels and entails several activities, including route march with a load, fire and movement bounds, jerry can carry and weighted box lift, all conducted in uniform and boots, with the addition of webbing, rifle and body armour. The assessment level is based on the role in which soldiers are employed, and is age and gender neutral. Of note, Army asserts that 'extensive scientific research has been conducted to ensure PESA reflects a spectrum of physically demanding trade tasks',[8] and 'the PESA elements are based on the essential tasks required to be performed by all members of the Army and are gender and age neutral'. The PESA, however, is not an AIRN requirement and is not necessarily a prerequisite for deployment on non-warlike or peacetime operations. It is, however, a standard demanded of members designated for warlike operations. A reasonable conclusion from this distinction is that the AIRN is regarded as imposing adequate fitness standards for non-warlike and peacetime operations, but not for warlike operations.

Given the extensive level of research that was conducted to produce the PESA, along with the PESA's purpose, there is an argument to be made for the PESA to replace the BFA as the AIRN requirement. There are two justifications for this view. First, regardless of the environment within which they are operating, military personnel must continue to possess 'the physical capacity to safely perform the range of physically demanding tasks associated with their employment in Army', regardless of their gender or age. The second reason is far more technical in nature and its explanation provides good foundation for discussing the significant challenges posed by Army's efforts to generate appropriate physical employment standards for its serving members. To this end, the following section summarises the relevant technical considerations.

Gender and Relative versus Absolute Fitness

Whereas the term 'relative strength' is used to describe 'the total amount of force that can be produced in a movement relative to one's body weight', the term 'absolute strength' describes the 'maximal amount of force that one can produce in a single movement'. Both forms of strength are related because – given that the individual's body weight does not increase – an increase in absolute strength should be reflected in an increase in relative strength.[9] Studies conducted on healthy males and females reported that, when compared to their male counterparts, on average females have approximately two-thirds of the muscle mass, 6–12 per cent higher body fat, 12.5 per cent less blood volume per kg of body mass, 12 per cent lower haemoglobin concentration and 10–20 per cent lower maximal oxygen uptake (VO2 max) per kg of body mass.[10]

For the purpose of this paper, the terms 'relative fitness' and 'absolute fitness' are used to refer to the combination of the cardiovascular and strength components of physical fitness in males and females. Thus, 'relative fitness' refers to an individual's total cardiovascular and force outputs relative to their maximal cardiovascular capacity and body mass, respectively. On the other hand, 'absolute fitness' refers to an individual's maximal cardiovascular and force outputs at any movement and at any point in time. In this regard, females can be said to possess lower absolute fitness while simultaneously needing to apply a higher level of relative fitness to complete the same physical task as their male counterparts.

Applying the distinction between relative fitness and absolute fitness, the BFA can be viewed as a measure of relative fitness, while the PESA is a measure of absolute fitness. This is because the BFA standards vary in relation to the individual's gender and age while the PESA is gender and age neutral. In other words, the BFA measures the individual's relative fitness while the PESA assesses their absolute fitness. In the next section, the implications of this distinction are discussed with reference to the principles of physical training.

Principles of Physical Training

When participating in exercise, or sport training, there are seven basic principles that athletes and coaches must keep in mind. These are:[11]

1. Specificity – a person's physical adaptations are specific to the type of training stress. Athletes should therefore train movement patterns and intensities to improve their performance at distinct, key components of specific tasks.
2. Individualisation – the adaptation capacity of individuals to physical training varies according to physiological, psychological, environmental and genetic factors. Consequently, a training program should account for variables such as age, current fitness level, lifestyle habits and training history.
3. Overload – exposing the tissues to higher levels of training stimuli at regular intervals induces training adaptations within athletes. Nonetheless, excessive overload combined with inadequate rest may cause adverse effects such as overtraining and injury.
4. Progression – for continued training adaptation, a systematic and gradual increase in training overload is necessary. However, the rate of progress must be considered because rapid progress may lead to injury while slow progress will delay goal attainment.
5. Periodisation – refers to the systematic planning of varying training loads and incorporating adequate rest and recovery to meet short- and long-term training goals. Hence, it provides a structure for controlling the stress and recovery required to induce training adaptations while reducing the risk of excessive overtraining.
6. Rest and recovery – this is a frequently neglected training principle, although it is arguably one of the most important to consider and incorporate. Inadequate rest and recovery exposes athletes to overtraining and overuse injuries. The age of athletes, type of training and environmental conditions are some of the factors that should be considered during the recovery process after a training session.
7. Reversibility – on discontinuation of training a specific activity or as a result of inadequate training, the body will adapt to these conditions through loss of performance in that activity.

Although soldiers who pass their BFA will need to participate in lead-up training before undertaking their PESA, *none* of the skills tested in the BFA are tested in the PESA. In effect, the BFA operates as the start point of physical fitness, providing a flexible gender- and age-dependent start point of physical fitness. By contrast, the PESA is 'a fixed end point of fitness for military service'.[12] Of concern, the transition from the BFA standards (the start point) to the PESA standards (the end point) does not adhere to any of the physical training principles. Also, given females have lower BFA standards than their male counterparts – as viewed from an absolute fitness perspective – but are required to meet the same PESA standards for their corps and to do so within the same training period, it is apparent females will need to train at higher intensities if they are to undertake the same training frequency. Although this observation can also be made for males over 25 years of age when compared to their younger colleagues, the disparity especially affects females because they require longer times to recover from injuries than their male counterparts,[13] while simultaneously being more susceptible to stress fracture injuries.[14]

The challenge of balancing relative and absolute fitness requirements in a military context is acknowledged in the relevant research literature. For example, the research team responsible for the introduction of the Pre-Enlistment Fitness Assessment (PFA) has observed:[15]

> *Although there is no question regarding a fixed end point of fitness for military service, if the time to achieve that end point is fixed and there are different start points, the net result will be a major difference in both the absolute and the relative amounts of effort and improvement needed.*
>
> *… The current system of variable start points and a fixed end point is a recipe for injury, particularly given the low levels of initial fitness in females.*

AIRN as Preparation for Pre-deployment Training

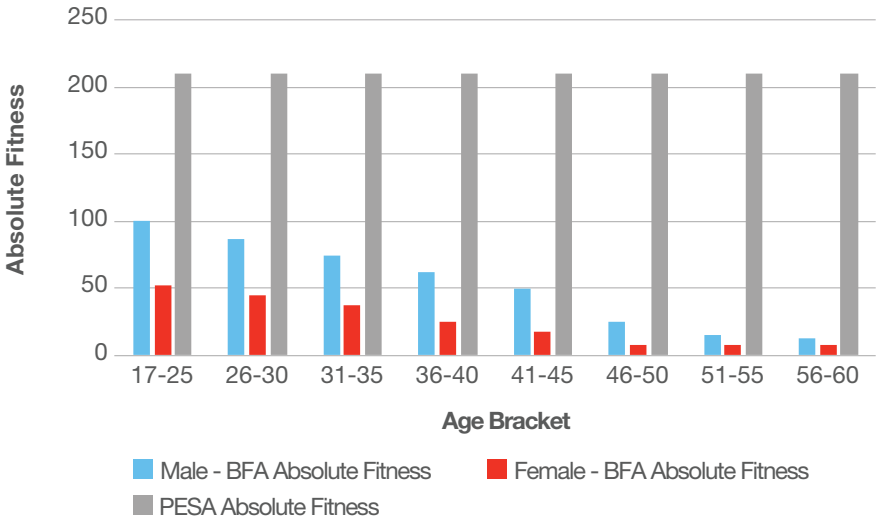
As outlined previously, a key rationale for the AIRN is that it aids in the preparation of military members for pre-deployment training. Specifically, the relevant Army Standing Instructions provide that it 'assists pre-deployment training during force preparation by providing a common start point'. This being the case, the AIRN 'addresses Army's duty-of-care commitment by prescribing the baseline individual readiness standard to be achieved by Army personnel'. The problem is that this statement does not withstand closer scrutiny.

To assert that the AIRN provides a common start point implies that all members of Army who are AIRN compliant – regardless of gender or age – possess the same (a common) level of physical fitness. This statement can only be true if viewed through the lens of relative fitness.

Further, studies have demonstrated that sit-ups and push-ups – which are key components of the BFA – are poor predictors of job-related task performance within Army. In particular, sit-ups have no relationship with occupationally relevant tasks.[16] Furthermore, since females (on average) possess a lower absolute fitness than their male counterparts, and absolute fitness is a better predictor of an individual's capacity to safely perform the physical demands of their job, then the BFA automatically disadvantages females by exposing them to a higher risk of injury while performing their physical job tasks.

Figure 1 is intended to provide a visual representation of the interaction between the BFA and PESA in terms of absolute fitness per age bracket and sex.

Figure 1. A visual representation of the interaction between the BFA and the PESA viewed through the lens of absolute fitness, broken down by age bracket and sex. The calculations of the absolute fitness values are arbitrary in nature but highlight the significant disadvantage that the BFA places on the entire Army female population as well as on males who fall outside the 17–25 age bracket.[17]



Note: This graph is not to be considered as an accurate qualitative or quantitative representation of the true total energy output required to pass either the BFA or the PESA. It is only a visual aid to highlight the discrepancy between the two tests.

In reality, the PESA is a more appropriate standard by which to assess soldiers' physical capacity to meet the physical demands of their various duties.[18] This assertion is supported by an Australian study of fully qualified soldiers in units from the following selected corps:

- Royal Australian Infantry Corps
- Royal Australian Artillery Corps
- Royal Australian Engineers
- Royal Australian Armoured Corps
- Royal Australian Corps of Signals.

This study found that 34 per cent of all participants reported sustaining at least one injury as a result of a load carriage activity during their military career and that females have a 21 per cent higher risk of injury than males.[19]

It is particularly notable that females of equivalent physical fitness have the same risk of injury as their male counterparts.[20] In this regard, most of the factors linked to susceptibility to physical injuries in males and females can be credited to their physical conditioning and not to their gender.

The proposition that the PESA offers a more suitable fitness standard than the BFA is not uniformly accepted. As noted earlier in this paper, many individuals dislike the PESA because they believe that it greatly overestimates the job-specific physical fitness requirements; and this concern warrants closer scrutiny. The most accurate way to determine whether the PESA provides a realistic standard that accurately correlates with a soldier's physical fitness requirements for their professional duties in Army can best be determined by comparing the injury rates of soldiers on operational deployments with the injury rates of soldiers post completing the PESA. Regrettably, I was unable to locate any study that directly investigated this matter. Nevertheless, the answer may be derived via other methods.

To address this issue, I considered the number of first-time self-reported injuries by Australian soldiers within the first 12 months of their posting in an operational unit. The results showed that 20 first-time occurrences of load carriage injury were reported by participants during their first 12 months in an operational unit, and the total number of individuals who participated in the study was 338. Based on these figures, it can be concluded that an average of 5.92 percent of fully qualified Australian soldiers newly posted into operational units are injured every 12 months as a result of load carriage activities.

Because there are no Australian studies of deployment injuries, I examined US research on injury rates conducted on deployed American soldiers. A study of soldiers deployed to Afghanistan in 2012 found that 45 percent of US soldiers reported at least one injury during their 12-month deployment period. Of these injuries, lifting/carrying was the most frequently reported cause of the injury (9.8 percent), immediately followed by dismounted patrolling (9.6 percent) and physical training (8 percent).[21] It is notable that the average weight of equipment worn by the American soldiers involved in the study fell in the range of 21.3 ± 13.6 kg and that it was worn for an average of 6.7 ± 4.9 hrs, while the average weight carried by those in the Australian study was heavier at 29.5 kg. By comparing the percentage of injuries in newly posted Australian soldiers into operational units during their

first 12 months (5.92 percent) with the percentage of injuries in US soldiers deployed to Afghanistan during their 12-month rotation due to dismounted patrolling (4.32 percent of the 593 participants) , it is reasonable to conclude that a fully qualified Australian soldier is approximately 30 percent more likely to sustain an injury while participating in load carriage activities during peacetime as an American soldier conducting patrols on foot in a war zone.

Based on these studies, it is fair to say that load bearing is a function of deployment and, therefore, the absolute fitness requirement of the PESA represents the reality of military service better than the relative standards of the BFA. Nonetheless, there is scope for improvement in the PESA assessment standards. While deployed Australian combat units do carry heavy loads when in Marching Order (an average of 47.7 kg),[22] the American study found that 53 per cent of all patrols are conducted on foot. This suggests that the PESA route-marching component may indeed be overestimating the required physical demands of soldiers and is therefore exposing them to an unnecessarily higher risk of injury. This is because the maximum tactical rate of movement is 2,000 m/h while the PESA route-marching component is conducted at a rate of 5,500 m/h, a rate that even exceeds the maximum non-tactical rate of movement of 5,000 m/h.[23]

Further, an individual's physical fitness requirements in the workplace will vary depending on their specialty, their qualifications and the nature of the task being performed (e.g. administrative versus patrolling tasks), as well as the context in which the task is being performed (e.g. secure location versus forward operating base).[24] While there is no consensus among researchers regarding the relationship between military rank and physical injury, there is broad agreement that age and gender are correlated with susceptibility to physical injury. There is also agreement that a correlation exists between age and rank, whereby higher ranks are held by older individuals.[25]

The disparity in the correlation between military rank and physical injury is, in my opinion, due to the different variables considered in each study. Although a number of studies may be conducted on deployed personnel, if some of these studies consider age, gender, rank and nature of prime task (administrative versus tactical tasks) as input variables for predicting physical injury, while others consider the deployment environment (secure location versus forward operating base) as an additional variable, then the results would be expected to differ. That is, SOs and SNCOs largely

involved in administrative tasks are significantly less likely to engage in physically arduous activities when operating from a secure location than they would be if operating from a forward operating base. Therefore, the variables considered by the studies play a significant role in determining whether a correlation exists between rank and physical injury. Nonetheless, for the purposes of this paper it is assumed that a general relationship between age and rank does exist, which is an observable reality from common daily experience within both the military and civilian workforces. Accepting this proposition, the PESA standard is inevitably far more onerous for SOs and SNCOs than it is for JOs and JNCOs. This is because SOs and SNCOs need to train at tremendously higher intensities to reach the same PESA standard than their significantly younger counterparts. Therefore, given the propensity for SOs and SNCOs to fulfil non-tactical functions, imposing the PESA standard unnecessarily exposes them to high risk of injury.

Final Thoughts and Recommendations

As demonstrated by this paper, the BFA has little to no correlation with performance in job-related tasks and the PESA arguably overestimates the physical requirements associated with employment in Army. In addition, the interaction between the BFA's relative fitness and the PESA's absolute fitness standards operates to the detriment of the entire Army population, and its female members in particular.

Despite the tension between relative and absolute physical fitness standards, it is nevertheless logical to assert that the PESA represents a more suitable baseline physical standard than the AIRN's BFA. That is because only the PESA 'provide[s] assurance personnel have the physical capacity to safely perform the range of physically demanding tasks associated with their employment in Army'. This conclusion is only valid, however, so long as Army maintains a system of physical fitness assessments that is internally inconsistent. While the current PESA is evidently more relevant to the employment requirements of Army, it is nevertheless true that the BFA has been evaluated and found adequate to support deployments on non-warlike and peacetime operations. These contradictions point firmly to the need for reform. This is especially true since experience at the JO and JNCO levels points to the variations in the

physical fitness assessments as common friction points between Army personnel that inadvertently lead to unwanted tensions within the workplace – as demonstrated at the beginning of this paper.

A solution, however, is within reach. Based on my analysis, I make the following recommendations for consideration by Army:

- Conduct a study to determine the impact of the PESA on the physical wellbeing of Army personnel by analysing the number of injuries that occur during the lead-up training as well as post the conduct of the PESA.
- Maintain the current BFA elements and standards for SNCOs and SOs.
- Amend the BFA elements and standards for JNCOs and JOs to better align and correlate with the current PESA elements and standards – see Appendix 1.
- Amend the PFA elements and standards for new entrants to provide a more reliable prediction of their ability to successfully and safely graduate from their initial military training by better aligning them with these of the current PESA – see Appendix 1.

Conclusion

There is no doubt that employment in the Australian Army necessitates the imposition of physical fitness standards to assist with the selection of personnel for their potential involvement in physically arduous activities. Such assessments, however, must be instantaneously relevant, backed up with sound scientific evidence and complementary in nature. Deviation from these principles has, to date, proven to increase the risk of physical injury among Army personnel and, by extension, to be detrimental to ADF capability.

The research findings of this paper highlight a need for Army's current continuum of physical fitness assessments to be re-evaluated in light of known physical training principles; correlation between physical conditioning, gender and susceptibility to injury; and statistics on physical injury in non-warlike and warlike environments.

Because physical fitness is one of the many inputs to Army capability, it is very difficult to predict the full implications of the recommendations made here. Nevertheless, it is evident that Army's physical fitness requirements need regular revision and updating to remain relevant, contemporary and able to support our military men and women in the range of roles they are expected to fulfil on behalf of the nation.

About the Author

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Appendix 1. Proposed amendments to the current suite of physical fitness assessments employed by the Australian Army.

Fitness Assessment	Age	Gender	All Corps	Combat Corps	Infantry Corps	Remarks
Pre-enlistment Fitness Assessment	All	All	Tier-1 All Corps PESA (ACPESA)	Tier-1 Combat Corps PESA (CCPESA)	Tier-1 Infantry Corps PESA (ICPESA)	Varies between individuals based only on their choice of corps
Basic Fitness Assessment	Intermittently applicable – rank dependent	Intermittently applicable – rank dependent	Tier-2 ACPESA for NCOs and JOs	Tier-2 CCPESA for NCOs and JOs	Tier-2 ICPESA for NCOs and JOs	Current BFA elements and standards are only applicable to SNCOs and SOs
Physical Employment Standard Assessment	Intermittently applicable – rank dependent	Intermittently applicable – rank dependent	Tier-3 ACPESA for NCOs and JOs	Tier-3 CCPESA for NCOs and JOs	Tier-3 ICPESA for NCOs and JOs	Not applicable to SNCOs and SOs

PESA Tiers			
Tier	All Corps PESA	Combat Corps PESA	Infantry Corps PESA
Tier-1	The equivalent of an output that is a third of the current ACPESA output i.e. 1.7 km route march with a 7.5 kg load in 17–18.5 minutes, etc.	The equivalent of an output that is a third of the current CCPESA output i.e. 3.4 km route march with a 11.5–13.5 kg load in 33.5–37 minutes, etc.	The equivalent of an output that is a third of the current ICPESA output i.e. 5 km route march with a 13.5–15 kg load in 50–55 minutes, etc.
Tier-2	The equivalent of an output that is two-thirds of the current ACPESA output i.e. 3.4 km route march with a 15 kg load in 34–37 minutes, etc.	The equivalent of an output that is two-thirds of the current CCPESA output i.e. 6.8 km route march with a 23–27 kg load in 67–74 minutes, etc.	The equivalent of an output that is two-thirds of the current ICPESA output i.e. 10 km route march with a 27–30 kg load in 100–110 minutes, etc.
Tier-3	The current ACPESA standards i.e. 5 km route march with a 23 kg load in 50–55 minutes, etc.	The current CCPESA standards i.e. 10 km route march with a 35–40 kg load in 100–110 minutes, etc.	The current ICPESA standards i.e. 15 km route march with a 40–45 kg load in 150–165 minutes, etc.

Endnotes

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17 *To avoid excessive complexity while continuing to visually represent the interaction between absolute fitness and relative fitness, this graph was produced by setting the number of push-ups (40) required by males in the 17–25 age bracket as representative of the maximal energy output required for the BFA in terms of absolute fitness. All graph bars for the BFA were then produced by calculating the required number of push-ups for that age group and sex as a percentage of the maximum required push-ups* (40). Given the number of training sessions an individual is required to participate in and the nature of the tasks they are required to complete for their PESA, the PESA bars are an estimate of the average total energy output required of that individual to successfully pass all the PESA tests.

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Army's Gap Year: In Search of a Purpose

Phillip Hoglin

Introduction

A 2020 paper published in the *Australian Army Journal* (AAJ) outlined that the success of the Australian Defence Force Gap Year – Army (ADFGY-A) program that ran from 2007 to 2012 was not as clear as the rhetoric of the day suggested.[1] A low transfer rate into the Permanent Force coupled with ambiguity around its purpose gave reasonable cause to question whether the program represented value for money or whether it was even effective as an alternative avenue of entry.

After a hiatus of three years, Army reintroduced the ADFGY-A program in 2015. Its reintroduction was an election promise of the coalition government and provided Army with an opportunity to implement changes that were intended to address the criticisms of the first program. On 12 January 2015, the first intake of participants into the new program were enlisted and by the end of June 2022 a cumulative total of 2,160 had commenced the other ranks (OR) component.[2]

As with the paper published in 2020, the aim of this article is to examine the Gap Year completion rate and subsequent transfer into the Permanent Force or Reserves among OR[3] participants who enlisted in the program from January 2015.[4] To establish context and to allow the 2015 program to be compared against its 2007–2012 predecessor, the key changes and reforms made to the program will first be highlighted. This will be followed

by detail on recruitment, completion and retention outcomes exhibited so far. Common themes, observations and recommendations arising from both programs will be drawn together in the discussion towards the end of this article.

Previous Findings about the 2007–2012 ADFGY-A Program

By the time it ended, 1,630 participants had been recruited into the 2007–2012 ADFGY-A program. Immediately after or during the program, 32.8 per cent of participants had transitioned into the Australian Regular Army (Permanent Force roles currently described as SERCAT 6 and 7) and an additional 32 per cent had transitioned into the Army Reserve (roles currently described as SERCAT 3, 4 and 5). The remaining 35.2 per cent either separated or transferred into the Standby Reserves (currently described as SERCAT 2).

It was anticipated that retention of Gap Year participants in the Permanent Force after participation in the 2007–2012 program would be good, with policy and processes specifically developed to facilitate transfer.[5] It was implied that those not wishing to continue would self-select out of the Army in a 'try before you buy' approach, thereby leaving only those in service who were sufficiently motivated towards a longer-term Army career.[6] However, separation rates for participants continuing in the Permanent Force did not differ markedly from those of entrants through normal ab initio avenues. After four additional years in the Permanent Force (around five years in total), only 26.3 per cent of the original participants remained. Retention in the Reserves did not fare any better, with only 16 per cent of the original participants serving in the Active Reserves four years after they participated in the Gap Year.

Some of the main criticisms levelled at the 2007–2012 program were oriented around its purpose and whether it was intended to provide an experience for its participants or whether it was actually a recruitment opportunity. As a result of the lack of clear purpose from the outset, Army systems were not sufficiently flexible to provide participants who wanted to continue in the Permanent Force an opportunity to do so, thereby limiting the program's effectiveness as a recruiting avenue of entry. Eventually, training capacity and funding constraints resulted in reductions to the intake sizes such that the objective of offering a wide range of Army experiences to a large number of participants was also compromised. The reduced

intake levels and high separation rates of participants who were trained to the level of full-time capability contributed to Defence's assessment that the program was an ineffective and costly avenue of entry that could not be sustained. As a result, it was suspended in 2012.[7]

Comparison of the 2007 and 2015 ADFGY-A Program Structures

With a similar aim to its predecessor, the 2015 program offers 'to provide young Australians with the opportunity to gain experience as a member of the Australian Army for up to one year'.[8] Also as with its predecessor, there is ambiguity in its purpose, with Army's policy suggesting that the program 'provides a contemporary pathway into the Australian Army' with an emphasis on retention after the Gap Year. This incongruity between a *recruiting* objective and an *experiential* objective (the latter which does not imply retention in order for the program to be successful) has so far plagued analysis of the success of both programs.

Although it is easy to dismiss incongruity of purpose as a semantic matter, the mere existence of a discrepancy in objective has the potential to result in conflict in program administration and management. For example, the allocation of resources towards an experience versus retention or transition, and the approach taken towards marketing and attraction as a Gap Year or an alternative avenue of entry, are fundamentally different and implicitly connected to the objective of the program. Therefore, clarity of purpose remains essential in obtaining effective outcomes.

Setting aside the continued ambiguity in the program's objective, other more tangible characteristics such as the participant selection criteria remain similar. ADFGY-A is still intended to attract a slightly different and narrower recruiting demographic than normal ab initio avenues by appealing to post-secondary young Australians.[9] Additionally, the education, aptitude and age requirements of participants remain consistent between the programs and, despite the ambiguous policy statements, there remains no compulsion to continue to serve in the ADF after completion of the program.[10]

There are several key differences in the conduct and administration of the program that have been implemented since 2015, partially in response to criticism surrounding the first program, and partially to capitalise on opportunities that were previously missed. Notably, formal responsibilities have been assigned to monitor the progress of participants, provide individualised advice, and facilitate transition into the Permanent Force or,

at the very least, into the Reserves. This approach provides options for closer individual monitoring and management of participants, along with an effective feedback loop for improvements and advice to both the participant's chain of command and Army's leadership regarding the program itself.

There are other fundamental changes incorporated into the second program that offer benefits to both Army and the participant. For example, there has been a reduction in the number of employment categories available for participants from 23 to just seven. The roles now available are those where participants can be sufficiently trained with enough time remaining to experience at least a few months in a unit environment prior to the end of their Gap Year. Recruiting into a generic employment category known as General Enlistment (ECN500), prior to allocation to a specific employment category near the end of initial military training, was closed. This change allowed for more certainty for both training establishments and participants while providing for more focused approaches to marketing and attraction.[11] Additionally, participants are assured that, if they want to transition into the Permanent Force, then a position will be made available for them – an assurance that was not available for participants in the first ADFGY-A program (perhaps a consequence of an experiential rather than a recruitment objective). Finally, the ADFGY-A participant intake itself only occurs in the first quarter of each calendar year, so it is better synchronised with the intent of a post-secondary gap year. It also consolidates participants into a handful of recruit platoons, providing a more common experience for participants and enabling better programming throughout training and subsequent posting activities.

Analysis Data and Methodology

Gap Year participants are specifically recorded and identified in Defence's human resource system (Defence One). This allows all participants to be accurately tracked throughout their time in the program along with any subsequent service in the Permanent Force or the Reserves. For this analysis, data fields obtained included the Gap Year enlistment date, employment category, sex, separation or transfer date, and any subsequent movements into another Service Category (SERCAT) or Service Option (SERVOP).[12] The following analysis of Gap Year is approached from three

perspectives: achievement of ADFGY-A recruitment targets, completion of the program and transfer into the Permanent Force or Reserves, and post-program retention of participants who had transferred into the Permanent Force or Reserves.

Results

The first candidates who were enlisted into the revised ADFGY-A program commenced on 12 January 2015. Regular intakes then followed from January to March each year to align with the training courses for specific employment categories. By the end of June 2022, 2,160 OR participants had commenced the program over the eight years since its inception, with the program ongoing.

Recruitment Outcomes

The program has remained popular with applicants (as it was throughout 2007–12) and it is normal for Defence Force Recruiting to receive far more applicants than there are positions for all employment categories. This situation most likely reflects the continued positive employment value proposition that provides successful applicants with training, salary and experiences with no specific obligation period after completing the program. The marketing approach of 'spend an exciting 12 months in the Navy, Army or Air Force, where you'll get paid for meaningful work while travelling around Australia, gaining skills for life, and making lifelong friends' still appears to resonate.

Table 1 shows the recruitment outcomes from financial year (FY) 2014–15 to FY 2021–22 for each employment category, while Table 2 shows a breakdown by sex (correct at 1 January 2023).[13] Based on this data, there appear to be some positive attributes that are unique to Gap Year. Specifically, females are recruited into ADFGY-A combat roles at higher ratios than through ab initio avenues (14 per cent of participants in combat roles are women).[14] For other roles, it also seems that Gap Year has a positive influence on female recruitment outcomes (43 per cent of participants in non-combat roles are women). It can be speculated that this outcome could be attributable to the Gap Year employment offer having no obligation to continue to serve once the applicant completes the program. Due to the limited employment categories available, and the likelihood of

competition between avenues, a direct comparison with ab initio avenues cannot be made. Consequently, the benefit of the program to improving gender diversity outcomes cannot be ascertained with precision. However, it is reasonable to suggest that there might have been some marginal contribution to Army's overall recruitment outcomes for women.

Table 1. ADFGY-A recruiting targets and outcomes (FY 2014–15 to FY 2021–22)

Employment Category	Recruiting Year								Total
	FY14/15	FY15/16	FY16/17	FY17/18	FY18/19	FY19/20	FY20/21	FY21/22	
Artillery Gunner		25	15	15	15	13	29		112
Combat Engineer				24	24	24	24		96
Command Support Clerk	19	26	38	39	37	27	29		215
Distribution Operator	40	26	48	48	50	50	58		320
Driver Specialist	38	47	48	48	48	47	49		325
Operator Air and Missile Defence Systems			14	14	14	14			56
Infantry Soldier	103	126	137	112	82	95	85		740
General Enlistment*								296	296
Total Recruited	**200**	**250**	**300**	**300**	**270**	**270**	**274**	**271**	**2,160**
Target	200	250	300	300	270	270	270	270	2,130

*From 2022 new entrants into the program were recruited into a combat or support segment and allocated to an Employment Category during Initial Military Training.

Table 2. ADFGY-A recruiting outcomes by sex

Employment Category	Female	Male	Total
Artillery Gunner (ECN 162)	26	86	112
Combat Engineer (ECN 096)	23	73	96
Command Support Clerk (ECN 150)	91	124	215
Distribution Operator (ECN 104)	97	223	320
Driver Specialist (ECN 274)	179	146	325
General Enlistment (ECN 500)*	71	225	296
Operator Air and Missile Defence Systems (ECN 237)	14	42	56
Rifleman (ECN 343)	79	661	740
Grand Total	**580**	**1,580**	**2,160**

Completion of Gap Year and Transfer into the Permanent Force and Reserves

The results in Table 3 detail the completion and transfer outcomes for the FY 2014–15 to FY 2020–21 cohorts, representing 1,864 participants (validated as at 1 January 2023).[15] While there were 2,160 participants to 1 July 2022, the most recent 2022 cohort of 296 has not yet had an opportunity to complete the program and is therefore excluded from Table 3 until the transfer outcomes of the entire cohort are known.[16]

The participant completion rate is similar to that of the earlier 2007–2012 program, with around 80 per cent completing the program or transferring to the Permanent Force or Reserves. Additionally, early loss rates are comparable to other OR ab initio avenues, where around 20 per cent of any starting cohort separate before completion of training or the first year of service.[17]

In a significant improvement on outcomes from the 2007–2012 program, just over 57 per cent of participants transfer into the Permanent Force after the program (which may have occurred during or immediately after the Gap Year). An additional 23 per cent transfer into the Reserves, comprising 16 per cent into the Active Reserves (currently referred to as SERCAT 3, 4 and 5) and 7 per cent into the Standby Reserves (SERCAT 2). Almost 20 per cent separate altogether.

There is a substantial difference between employment categories, with the transfer of infantry soldier and artillery gunner participants into the Permanent Force significantly below the average, while the percentage of combat engineer and driver participants is higher. Separation figures also differ between employment categories, with over a quarter of all infantry soldier participants separating from Army altogether, compared with around 8 per cent of combat engineer and 10 per cent of command support clerk participants.

The difference in completion rates between combat and combat support categories is notable and may suggest that ADFGY-A has different rates of efficacy across the employment categories. The program appears to have been particularly effective in recruiting and retaining combat engineers, which, despite only being included in ADFGY-A since 2018, is the employment category with the highest transfer rate and lowest rate of separation. This situation contrasts with the infantry soldier category, which is popular and oversubscribed but has low transfer rates into the Permanent Force. Indeed, this category achieves barely average transfer rates into the Reserves (despite many opportunities in Reserve roles), and higher separation than all other available employment categories.

Females generally had higher rates of completion and transfer than males. As shown in Table 3, over 84 per cent of women completed the program or transferred, compared with less than 79 per cent of males. At the employment category level, female artillery gunners and infantry soldiers had substantially higher transfer rates into the Permanent Force and lower separation rates (during the program) than their male counterparts. This provides some support for Army's ongoing initiative of lower obligation periods for women applying for these roles through ab initio avenues of two years, but also raises questions as to why a one-year program with no ongoing service obligation would result in substantially different outcomes than a two-year ab initio obligation.

Unfortunately, when assessing the program against its objectives, comparisons against an average, other employment categories or other sex are constraining and not necessarily useful. However, there is little choice but to use these types of metrics because, while averages and comparisons do not provide a context of 'good or bad' or 'desirable or undesirable', Army has established no performance or success criteria for what it expects or hopes from the Gap Year program. Consequently, the following discussion remains necessarily oriented around relative comparisons in relation to transition and separation.

Table 3. ADFGY-A completion and transfer outcomes (FY 2014–15 to FY 2020–21) by sex and total

Employment Category	Total Participants	ADFGY-A Completion		Transfer During or After Gap Year Participation							
				Permanent Force SERCAT 6, 7		Reserves SERCAT 3, 4, 5		Standby Reserves SERCAT 2		Separation	
Female											
Artillery Gunner (ECN 162)	26	23	88.5%	20	76.9%	2	7.7%	1	3.8%	3	11.5%
Combat Engineer (ECN 096)	23	22	95.7%	13	56.5%	7	30.4%	2	8.7%	1	4.3%
Command Support Clerk (ECN 150)	91	79	86.8%	63	69.2%	10	11.0%	6	6.6%	12	13.2%
Distribution Operator (ECN 104)	97	73	75.3%	53	54.6%	14	14.4%	6	6.2%	24	24.7%
Driver Specialist (ECN 274)	179	156	87.2%	115	64.2%	36	20.1%	5	2.8%	23	12.8%
Operator Air and Missile Defence Systems (ECN 237)	14	13	92.9%	9	64.3%	4	28.6%		0.0%	1	7.1%
Infantry Soldier (ECN 343)	79	63	79.7%	48	60.8%	12	15.2%	3	3.8%	16	20.2%
Female Total	**509**	**429**	**84.3%**	**321**	**63.1%**	**85**	**16.7%**	**23**	**4.5%**	**80**	**15.7%**

Employment Category	Total Participants	ADFGY-A Completion		Transfer During or After Gap Year Participation							
				Permanent Force SERCAT 6, 7		Reserves SERCAT 3, 4, 5		Standby Reserves SERCAT 2		Separation	
Male											
Artillery Gunner (ECN 162)	86	70	81.4%	48	55.8%	13	15.1%	9	10.4%	16	18.6%
Combat Engineer (ECN 096)	73	66	90.4%	55	75.3%	6	8.22%	5	6.8%	7	9.6%
Command Support Clerk (ECN 150)	124	114	92.7%	77	62.1%	29	23.4%	8	6.4%	10	8.1%
Distribution Operator (ECN 104)	223	181	81.2%	120	53.8%	38	17.0%	23	10.3%	42	18.8%
Driver Specialist (ECN 274)	146	120	82.2%	95	65.1%	17	11.6%	8	5.5%	26	17.8%
Operator Air and Missile Defence Systems (ECN 237)	42	37	88.1%	24	57.1%	8	19.0%	5	11.9%	5	11.9%
Infantry Soldier (ECN 343)	661	480	72.6%	328	49.6%	107	16.2%	45	6.8%	181	27.4%
Male Total	**1,355**	**1,068**	**78.9%**	**747**	**55.1%**	**218**	**16.1%**	**103**	**7.6%**	**287**	**21.2%**

Employment Category	Total Participants	ADFGY-A Completion		Transfer During or After Gap Year Participation							
				Permanent Force SERCAT 6, 7		Reserves SERCAT 3, 4, 5		Standby Reserves SERCAT 2		Separation	
Grand Total											
Artillery Gunner (ECN 162)	112	93	83.0%	68	60.7%	15	13.4%	10	8.9%	19	17.0%
Combat Engineer (ECN 096)	96	88	91.7%	68	70.8%	13	13.5%	7	7.3%	8	8.3%
Command Support Clerk (ECN 150)	215	193	89.8%	140	65.1%	39	18.1%	14	6.5%	22	10.2%
Distribution Operator (ECN 104)	320	254	79.4%	173	54.1%	52	16.2%	29	9.1%	66	20.6%
Driver Specialist (ECN 274)	325	276	84.9%	210	64.6%	53	16.3%	13	4.0%	49	15.1%
Operator Air and Missile Defence Systems (ECN 237)	56	50	89.3%	33	58.9%	12	21.4%	5	8.9%	6	10.7%
Infantry Soldier (ECN 343)	740	543	73.4%	376	50.8%	119	16.1%	48	6.5%	197	26.6%
Grand Total	**1,864**	**1,497**	**80.3%**	**1,066**	**57.2%**	**303**	**16.3%**	**126**	**6.8%**	**367**	**19.7%**

Post-Program Retention

While just over 57 per cent of program participants transferred into the Permanent Force or Reserves immediately after completion, their ongoing retention also remains a significant indicator of program success (where recruitment is an objective of the program). As with the 2007–2012 program, it is interpreted that those remaining in the Army after completion of the program are sufficiently motivated toward a long-term career, owing to the numerous opportunities to self-select out during their Gap Year.

Complete analysis of retention outcomes requires that a sufficient period has elapsed since the cohorts first commenced and completed the program. For this analysis, retention to the four-year mark is chosen as the benchmark because it is the same obligation period that would be applied to most individuals if they were recruited through ab initio avenues (less women recruited with a two-year obligation). This narrows the data from which to analyse retention to the first four ADFGY-A cohorts (financial years 2014–15, 2015–16, 2016–17 and 2017–18), in which there were 1,050 participants.[18] For these cohorts, by the end of the first 12 months of the program, 55 per cent of participants had transitioned into the Permanent Force, 17 per cent into SERCAT 3 or 5, and 8 per cent into SERCAT 2. Around 18 per cent had separated altogether and the remaining 2 per cent remained in the program for a range of reasons.[19]

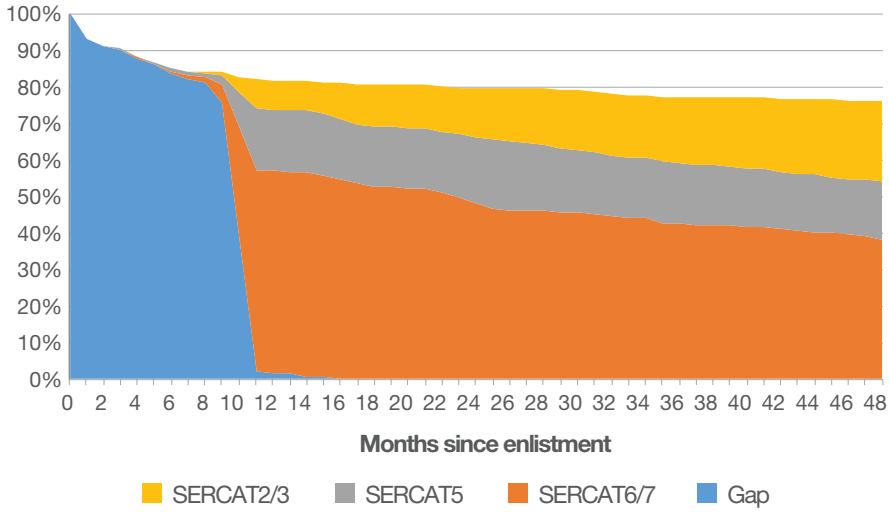
The ongoing retention rate of participants to the four-year mark is shown in Figure 1. While 55 per cent of the financial year 2014–15 to 2017–18 cohorts ultimately entered the Permanent Force during or immediately after their Gap Year, three years later (four years in total) just 38 per cent remained. This decrease from 55 per cent to 38 per cent (17 per cent) equates to 31 per cent of ADFGY-A participants who transitioned to the Permanent Force after completion of the program subsequently choosing to separate or transfer to the Reserves before completing a total of four years of service (and after the first year). This figure is useful for comparison with other avenues of entry.

The ADFGY-A and normal ab initio populations differ markedly in several of the characteristics mentioned earlier, such as age, aptitude, education and service obligation; however, cautious comparisons can be made. While 38 per cent of Gap Year participants completed a total of four years of service in the Permanent Force, over 65 per cent of those recruited through

ab initio avenues completed the same length of service.[20] Unfortunately, this direct comparison is dubious because ADFGY-A participants are under no obligation to undertake further service after completion of the program, unlike their ab initio counterparts, who typically have a four-year obligation period. However, once the first year is set aside and only those former Gap Year participants who transferred to the Permanent Force are considered, proportionately more (31 per cent) will still leave after one and before the end of four years than the 20 per cent of those recruited through ab initio avenues who leave during the same period in a career.

While a benefit to the Reserves has been mentioned as a secondary outcome of ADFGY-A,[21] the level of reserve activity undertaken by participants after they transfer to the Reserves is not high. Of the 261 participants who transferred to the Reserves (SERCAT 2, 3 or 5 from the same four cohorts mentioned above), only 110 (42 per cent) paraded for 21 days or more in any subsequent year until the end of FY 2021–22. Of these, 24 only achieved this milestone once following completion of the program. When those who initially transferred to the Standby Reserve (SERCAT 2) are considered in isolation, only 10 of 83 undertook 21 days or more of effective service in the years after completing the program, nine of whom transferred to SERCAT 5 before doing so.

Figure 1. Retention of ADFGY-A participants (FY 2014–15 to FY 2017–18 inclusive) – first 48 months



Is the 2015 Gap Year a Success?

An assessment of the program depends primarily on the lens through which success is defined. As discussed in this and the previous AAJ paper, a claim of success depends on whether the program's objective is viewed as experiential or an alternative avenue of entry to the Australian Defence Force. Several observations made in this paper suggest that, while an experiential objective remains in policy and some marketing material, this is far from the reality of Army's intent for the program. It is notable that neither the Army nor the equivalent schemes of the other Services have undertaken any research to ascertain whether participants took their positive experiences of military service acquired during their Gap Year into the broader community, whether this had positive implications for the nation or Defence, or even whether the individuals themselves benefited from their Gap Year experience. Therefore, success against an experiential objective remains the subject of speculation and it is likely that the practicalities of recruiting and the achievement of targets has become the dominant consideration for Army over simple experiences for participants.

Recruiting Success

For the purpose of further discussion, it is pragmatic to infer that Army considers the program's objective as being an alternative avenue of entry to the ADF, particularly given its recruiting success. However, it is unclear whether the program competes against the usual ab initio avenue for the same applicants, or results in an overall increase across all avenues. It is not possible to reliably conclude that the program contributed to an increase in total recruiting above that which would be achieved if ADFGY-A did not exist at all. Therefore, a larger ADFGY-A may not be a panacea for Army's ongoing recruitment shortfalls, despite its apparent success in attracting candidates to the program.

Nonetheless, the current structure of the program provides some insight regarding the program's capacity to assist with recruitment outcomes. Specifically:

- When employment categories are oversubscribed (i.e. have more applicants than positions), it makes no difference whether those targets are met through one or many avenues of entry. For these employment categories, ADGFY-A serves no purpose in improving recruiting

outcomes. Therefore, it would be fair to conclude that they likely remain an offering within the program only to ensure that a range of roles are available to prospective candidates. If the transfer of participants into the Permanent Force at the end of their Gap Year is not what Army requires or was expecting, then it is entirely plausible that ADFGY-A may actually be detrimental to short-term recruiting into the Permanent Force.

- When employment categories are undersubscribed (i.e. there are not enough applicants in the absence of a Gap Year program), then a net positive outcome will only occur if the Gap Year offer operates to attract more applicants in total than could be achieved if normal ab initio avenues were the only option. If this is not the case and the ADFGY-A program simply displaces applicants from ab initio avenues to itself, and their transfer rate into the Permanent Force is low, then the program will be detrimental to overall recruiting into the Permanent Force in the less popular roles.

The degree to which different employment categories differ in their appeal to prospective candidates is relevant in determining the utility of ADFGY-A as a recruitment tool. In particular, the likelihood of the program making a contribution to overall recruitment outcomes is driven by whether employment categories offered through ADFGY-A are routinely oversubscribed or undersubscribed in the broader ab initio targets. On this basis, the prerequisites for the program to make any real impact on recruitment into the Permanent Force are:

1. The employment categories available through ab initio avenues are undersubscribed.
2. The ADFGY-A offer increases net total enlistments across all avenues of entry.
3. The transfer of Gap Year participants into the Permanent Force is above an established threshold such that the total number of those continuing their service (when all avenues of entry are summed together) is greater than what might have been achieved if there were only an ab initio avenue.[22]

These same prerequisites and conditions can be applied for smaller segments such as the recruitment of women. For example, for the program to make any impact on female representation in the Permanent Force, the number of female applicants must be broadly undersubscribed against

targets available through normal ab initio avenues, the ADFGY-A offer must increase the net total female enlistments across all avenues, and the transfer of female Gap Year participants into the Permanent Force at the end of the program, combined with females recruited through ab initio avenues, must be greater than what might have been achieved if there were only an ab initio avenue. On review, it is likely that these three conditions have been met in the 2015 version of the program. Therefore, ADFGY-A has probably made a marginal contribution to improving the representation of women in Army.

At between 8 and 10 per cent of the total Army OR recruiting target (excluding in-service targets), and up to 40 per cent for some employment categories (such as Command Support Clerk), the program competes with ab initio avenues to varying degrees. However, if expanded (either in terms of more employment categories or in terms of total participant targets) the program would likely compete more explicitly with ab initio entry. In this context, it is questionable whether – and to what extent – the program could meet the three prerequisites outlined above. Maintaining two separate avenues of entry that only differ in the length of initial obligation period raises an obvious question concerning the efficacy of having two avenues rather than one. Army may wish to consider a single avenue of entry that either abolishes an obligation period altogether or at least reduces it to be better aligned with the current Gap Year model that has no service obligation.

Overall, it is not possible to conclude that ADFGY-A contributes to recruitment outcomes in any meaningful way. For those employment categories where ab initio targets are always achieved, the program achieves little or nothing with respect to Army's recruiting requirements. For those employment categories where targets are not always achieved, it remains unknown whether Gap Year participants would have joined Army through ab initio avenues anyway. Therefore, it is difficult to ascertain the recruitment benefit to the Permanent Force that can be attributed to Gap Year. Without knowing how many participants were incentivised to join the Army specifically because of the program, and how many of these participants made a decision to transfer into the Permanent Force, the recruitment benefit of ADFGY-A remains a matter for speculation.

Retention and Ongoing Service

Retention beyond the first year of enlistment is an important measure of success in recruitment efforts as it indicates the extent to which participants who have been trained to the level of a Permanent Force member actually go on to serve in the Permanent Force beyond Gap Year. This is an especially important metric where the program is viewed as an alternative avenue of entry. It has already been observed that transfer rates to the Permanent Force have increased from 32.8 per cent during the previous program to 57.2 per cent during the second. Much of this increase is attributable to the previously mentioned improvements that have facilitated transfer into the Permanent Force, including the ADF's assurance that a position will be available for those participants wishing to transfer. However, the progress of these participants beyond the first year is of equal, if not more, relevance to an assessment of program success than transfers into the Permanent Force.

While the initial transfer rates are sound, ongoing retention in either the Permanent Force or the Reserves appears to remain an area of weakness. With just 38 per cent of program participants remaining in the Permanent Force after four years of service, and relatively high loss rates after the first and subsequent years, the cost-effectiveness of training and employing participants who do not provide enduring periods of capability after program completion is questionable. Transfer rates into the Reserves do little to offset or compensate for the high loss of numbers in the Permanent Force, because relatively few participants render effective reserve service in subsequent years. Furthermore, transfer into the Standby Reserve (SERCAT 2) appears to be something of a proxy for separation, as 88 per cent of members have not rendered any further effective service of 21 days or more since completing the Gap Year (and most of those who did achieve this level of service had already transferred from SERCAT 2 to SERCAT 5).

Training participants to a relatively high level of capability, including the resources necessary to recruit, train, retain and transfer them, appears suboptimal and fiscally wasteful where their ongoing service and retention is low. This shortfall may represent an area for program review and further assessment by the Army. While this article has not focused closely on the fiscal aspects of the program, an average ADFGY-A participant will cost around $60,000 in salary over the year. This means that the cost of the program is $16 million annually in salaries alone (without including other

attributable and non-attributable costs such as allowances, superannuation, housing, training, medical, dental etc.). Failure to realise an investment in the 44 per cent of participants who do not transfer into the Permanent Force represents a poor use of least $7 million of Defence funding annually.

Ongoing Criticism of ADFGY-A

While many positive changes were made to the 2015 program, several criticisms remain. The program's place in the recruitment landscape remains undefined, a characteristic that owes its origins to the problematic nature of the objectives as either experiential, recruiting or both. It seems apparent from the changes that have been made to the program since its initial inception that Army views ADFGY-A as an alternative avenue of entry; however, Army still has no particular defined expectation or outcome for the program beyond merely meeting the recruiting target and transferring as many as possible into either the Permanent Force or the Reserves. For a multimillion-dollar program, this overly simplistic objective is in desperate need of reform towards a clearer intent.

The program also continues to attract and recruit individuals with relatively high levels of education and aptitude and, due to the limited employment categories available, places them in positions that do not necessarily require these attributes. This situation creates the suboptimal outcome that individuals are not necessarily offered the employment category they are best suited for, are not provided an opportunity to enlist into their most preferred employment category, and are ultimately not employed in roles that make best use of their potential. Furthermore, employment categories that do require the higher aptitude of ADFGY-A participants are denied the applicants they might otherwise have received, simply because their employment category is not part of the ADFGY-A program.

Although ADFGY-A remains extremely popular with candidates and targets are almost always achieved, the program presents potential candidates with multiple options for the same role in a confusing recruitment landscape. The requirement for Defence Force Recruiting to maintain marketing and attraction campaigns for two parallel avenues of entry – Gap Year and ab initio entry – has the effect of splitting resources (or requiring additional resources). It also inevitably places these avenues of entry in direct competition with one another. The efficacy of purposely creating this form of internal competition is questionable, particularly in a situation in which

there is no net increase in recruitment, where high-quality candidates are funnelled towards limited roles, and where the only practical difference between programs is whether there is an associated service obligation.

Scope for Improvement

In principle, structural inefficiencies in the design and administration of ADFGY-A are relatively simple to resolve. In the first instance, Army should unambiguously determine whether it intends for ADFGY-A to simply provide an experience for applicants, or whether the program offers a genuine alternative avenue of entry.

If the purpose of the program is predominantly to provide participants with an experience of military life, then there are several changes required. To broaden exposure of Australia's young demographic to the military, then an expansion exceeding 1,000 each year would be necessary to achieve a tangible and measurable outcome. A specific generalist 'work experience' type program that exposes participants to life in the wider Army (rather than life in a specific employment category) would also be necessary. Criteria for participation would need to be reviewed in order to ensure a wide applicant base without compromising normal Army ab initio recruitment avenues. Further, participants should be told not to expect to transfer into the Army at the completion of the Gap Year unless they satisfy Army selection criteria and undertake employment category training. This experiential model would require significant Army resources but would offer a distinct work experience product to a segment of the Australian population that would not normally undertake military service.

By contrast, if the purpose of the program is to provide an alternative avenue of entry to Army, then changes are simpler, but more confronting for Army. To avoid direct competition with normal ab initio avenues of entry, Army will need to consider exclusive ADFGY-A roles (i.e. employment categories where the only avenue of entry is the program). Alternatively, Army may need to reconsider the efficacy of persisting with two avenues of entry to the same employment category where the only substantial difference is the obligation period, or a lack of one. A review would likely indicate efficiencies in either combining the avenues of entry and ceasing or reducing the obligation period to one or two years, or ending the program altogether and reverting to extant obligation periods imposed on ab initio recruits. Consolidation of avenues of entry would simplify the employment offer, remove inequities between

individuals recruited through different avenues, allow for focused marketing and attraction approaches, and provide individual applicants with the widest range of employment categories possible to best fit their individual talents, skills, aptitude and preference.

Regardless of the option chosen by Army, the program's purpose and objectives must be measurable. These performance measures should be more deliberate than simple recruitment and completion outcomes. Measures relating to an experiential objective might include participant satisfaction, positive impact on influencers, increases in participant or public sentiment, increases in Army civilian engagement, improved employment outcomes for participants, and so on. A recruiting objective might consider retention beyond the Gap Year, individual performance, suitability for promotion (and actual promotion), and long-term retention. Whatever the program's purpose and objectives, performance measurement needs to improve.

Conclusion

ADFGY-A has become a mainstay of the Army recruiting landscape. However, as with the program that ran from 2007 to 2012, Army policy and practice perpetuates an uncomfortable ambiguity around the true purpose of ADFGY-A. This is despite its reinvigoration in 2015 and an opportunity to redefine objectives. Just as there were no specific or measurable objectives of the previous program beyond simple recruiting results, there are none for the 2015 program – an unfortunate oversight requiring rectification.

While its purpose requires further definition, there have been significant structural and policy improvements made to the current program. The removal of constraints on participants transferring into the Permanent Force, reduction and consolidation of the number of roles to aid recruiting and management, implementation of a mentoring scheme, and improved general oversight have all greatly enhanced the program. When combined it is likely that these improvements have helped increase the number of participants transferring into the Permanent Force from 32.8 per cent in the original program to over 57 per cent.

Nevertheless, having made all these improvements, it remains the case that 43 per cent of participants (from the FY 2014–15 to 2020–21 cohorts

inclusive) do not transfer into the Permanent Force. Of those who transfer into the Reserves (16 per cent to SERCAT 3/5 and 7 per cent to SERCAT 2), relatively few render a reasonable period of effective service of at least 21 days. The fact that, despite having been trained to a Permanent Force standard and fully exposed to an early Army career and the opportunities and lifestyle it offers, a high proportion of participants are not transferring into the Permanent Force or rendering reserve service suggests that significant inefficiencies in the program persist.

Other criticisms of the program are worth noting: the program dilutes the resources dedicated to marketing and attraction of Army careers, competes with other avenues of entry, results in suboptimal use of the education and aptitude of participants, and generally does not contribute any more to capability than what might be achieved through normal ab initio avenues of entry. For many employment categories where there are no ab initio recruiting problems, the program is unnecessary, suboptimal and a potential waste of resources. Where there are problems in ab initio recruiting it is unclear whether the program helps through transfer of participants into the Permanent Force after their Gap Year, or hinders through siphoning potential ab initio applicants into a competing option with low transfer rates.

Regardless, noting the program's likely continuation, there are several conceptual changes that Army may wish to consider. First, Army should formally decide on the purpose of program and reflect this clearly in policy, promotional material and career management activities with associated performance measures. Second, the selective nature of the program should be reviewed to permit greater alignment between the aptitude, ability and role preferences of applicants. Third, assuming that the true purpose of the program is to provide an alternative avenue of entry, Army may wish to reconsider the efficacy of offering parallel and competing avenues of entry that differ only in an initial obligation period. Consolidation of all avenues of entry with just one (or no) common obligation period is likely to yield process efficiencies and simplify the employment offer.

Without these changes the ADFGY-A program will remain a confused hybrid scheme stuck in policy and purpose somewhere between an experiential youth program and a recruitment initiative. Currently, it succeeds in being neither.

About the Author

Colonel Phillip Hoglin graduated from RMC in 1994, having completed a Bachelor of Science (Honours) majoring in statistics. In 2004, he completed a Master of Science in Management through the United States Naval Postgraduate School. He graduated from the Command and General Staff College of the Armed Forces of the Philippines in 2006, and was awarded a Master of Philosophy (Statistics) through the University of New South Wales in 2012. He has been involved in workforce analysis since 2004, was the Director of Military People Policy from 2014 to 2017 and the Director of Military Recruiting from 2018 to mid-2020, and is currently a researcher within Defence People Group.

Endnotes

1 Phillip J Hoglin, 2020, 'The Australian Defence Force Gap Year – Army Program: Real or Rhetorical Success?', *Australian Army Journal* XVI, no. 1: 146–166.

2 As the program is ongoing, this figure represents the total other ranks enlisted into Gap Year between January 2015 and June 2022 inclusive.

3 A small number (30) of Officer Gap Year participants were appointed each year from January 2018 to January 2021; however, the program is different in structure and outcome such that officer data cannot be combined with that of other ranks.

4 Since 2012 it has been increasingly common to refer to the Australian Regular Army as the Permanent Force and Service Category 6 or 7; the Army Reserve as Service Category 3, 4 or 5; and the Standby Reserve as Service Category 2.

5 For example, see Department of Defence, 2008, *Defence Instructions (General) Personnel 05-10 Australian Defence Force Gap Year* (Canberra); and Department of Defence, 2008, *Defence Instructions (Army) Personnel 34-13 Australian Defence Force Gap Year – Army Management, Policy and Procedures* (Canberra).

6 Brendan Nelson, Minister for Defence, 'Get Ready for the ADF Gap Year', media release, 9 August 2007.

7 Nathan Church, 2014, *The Evolution of the Australian Defence Force Gap Year Program*, (Canberra: Parliamentary Library), at: http://www.aph.gov.au/About_Parliament/Parliamentary_Departments/Parliamentary_Library/pubs/rp/rp1314/ADFGapYear

8 Department of Defence, Military Personnel Policy Manual (MILPERSMAN) Part 2, Chapter 6, *Australian Defence Force Gap Year – Army* (Canberra), 1 and 13; this replaced Department of Defence, 2008, *Defence Instructions (Army) Personnel 34-13*, 1.

9 See 'Discover Your Path in an ADF Gap Year', *DefenceJobs*, accessed 22 April 2022, at: https://www.defencejobs.gov.au/students-and-education/gap-year?

10 In additional to normal selection requirements, ADFGY-A applicants must complete year 12, be aged between 18 and 24 at enlistment and obtain a competitive aptitude score normally higher than that required for general ADF entry.

11 Commencing in 2022, recruits apply for and are enlisted into either a generic combat segment or a support segment. These recruits commence basic training as ECN500 prior to allocation to a combat or support employment category towards the end of basic training.

12 For further explanation of service categories and options, see Department of Defence, 2020, MILPERSMAN Part 2, Chapter 5, *Australian Defence Force Total Workforce System – Service Spectrum*, AL13 (Canberra).

13 Some employment category names have changed over the period. The most recent equivalent employment category name is reported.

14 In this context, combat roles are defined as Infantry Soldier, Artillery Gunner, Operator Air and Missile Defence Systems, and Combat Engineer.

15 As at 1 April 2022.

16 Although the title is 'Gap Year', participants since 2015 have generally undertaken an 11-month program. The program is sufficiently flexible that extensions are relatively routine for administrative reasons, such as injury, and decreases are also not uncommon where individuals request early transfer into the Permanent Force (indeed, during the early stages of the COVID-19 pandemic, a large proportion of the 2019 cohort had their Gap Year shortened to enable transition into the Permanent Force or Reserves earlier than the normal 11 months).

17 This can be due to a range of reasons including self-selection, training failure and poor job-fit outcomes.

18 Analysis of retention over shorter periods, such as 12 months after the nominal completion of the program, is possible but comparisons against other avenues of entry are less valid.

19 These figures differ slightly from those provided in Table 3 as they only reflect four of the eight cohorts, whereas the table provides data for all cohorts up to FY 2021–22 (inclusive).

20 A duration of four years is chosen for comparison as it represents a normal service obligation period for those recruited through ab initio avenues into the same employment categories that are available through Gap Year.

21 Noetic Solutions, 2010, *Evaluation of the Australian Defence Force Gap Year Program*, prepared for the People Strategies and Policy Group (Canberra: Department of Defence).

22 This threshold will vary for each employment category and will require calculation by workforce modellers.

Soft Power 'Sky Net': The Importance of Artificial Intelligence for Information Operations

Callum Muntz

Introduction

Military practitioners are undoubtedly becoming more aware of the benefits that artificial intelligence (AI) can confer on military operations. But what exactly is AI? Popular media would have us imagine swarms of killer drones, unmanned vehicles such as personnel carriers, planes, tanks or even robots (maybe not unlike the droid armies from Star Wars). While no single definition for AI exists, there is a common understanding that AI is a programmed system that learns by itself, or can 'learn how to learn', and therefore can reason.[1] The application of this definition certainly includes the popular ideas noted above, but beyond science fiction, some regard AI's greatest military utility as providing computer-assisted decision-making tools. The research and development of AI has existed for decades and progressively since the 1940s, so much so that many technology end users are oblivious to the presence of AI in their consumer electronic devices.[2] AI's advances are creating new opportunities for military use, which many of the world's largest militaries understand and want to capitalise on.[3] Among all the notions that fall within the concept of AI, a range of incredible possibilities also exist for how future militaries can execute information operations (IO) when considering the current, and future, capability of AI.

IO will evolve considerably over the coming decade and remain a key capability enabler for future strategic outcomes. The present-day information environment is complex and its ubiquitous nature has drawn the attention of the world's super and middle powers seeking to gain a military advantage.[4] This situation was recognised in July 2016 when the North Atlantic Treaty Organisation (NATO) acknowledged cyber as the fifth warfighting domain.[5] Such recognition significantly expanded the potential scope of IO into never-before-seen levels of connectivity and influence.[6] Global powers are racing to capitalise on the military opportunities that AI presents, creating a sense of urgency for Australia's challenge to develop its own AI-enabled capabilities. As a result, the Australian Army and broader Australian Government are closely interested in opportunities to develop a robust IO concept, supported by information-related capabilities (IRCs), to be 'future ready' and able to contribute with relevancy to coalition forces.

This paper will evaluate how AI can enhance information operations to benefit the Australian Army in the future operating environment. In doing so, it will describe a hypothetical near-future scenario as a thought experiment to illustrate AI's future potential. An understanding of IO will then be developed, before two IO capabilities are explored – psychological operations and the cyber domain – to appreciate how AI will enhance their potential in the future. Using the scenario as the basis for analysing the potential of AI, the paper concludes with some ramifications for the Australian Army. Ultimately, as shall be shown, the Australian Army should adopt expertise in AI, specifically for the purpose of IO, if it wishes to capitalise on the associated opportunities that will almost certainly benefit from – and indeed may be reliant on – the employment of AI.

Thought Experiment

The following hypothetical scenario is a thought experiment whereby the potential consequences of AI-enabled information operations will be explored to aid in understanding this paper's evaluation. Many of the capabilities described are, in reality, more advanced, while others are still very much conceptual yet are trending towards development in the near future.[7] In that context, the thought experiment presented here may be considered to unduly favour one party to the hypothetical situation presented. Further, the solution posited depends on the delivery of a

coordinated, synchronised effort by China that may appear unrealistic; 'If only we could be so organised' would be a perfectly acceptable response. However, as this paper will demonstrate, when combined with AI, the capability of certain IRCs has sufficient potential that the circumstances described by the thought experiment are entirely plausible.

Since 2023, the Chinese Communist Party (CCP) has expanded its regional influence within the South-West Pacific through a combination of economic coercion, the delivery of military and information technology capability, and subtle human intelligence efforts led by its United Front Work Department (UFWD). Importantly, by co-opting humanitarian aid and infrastructure development organisations, the CCP was able to generate positive regional influence towards its narrative.[8] The increasingly favourable environment for the CCP, in turn, led to increased aggressive CCP military activity akin to that previously witnessed around the Spratly Islands and the broader South China Sea. In early 2025, the US responded to this perceptible shift in Chinese influence by increasing its commitment to the Cobra Gold exercise in Thailand and deployed a US-led coalition to the South-West Pacific. The mission was expeditionary, designed as a 'tour de force' to influence and counterinfluence the CCP's success. While the primary purpose of the US-led coalition was to shape the strategic environment in favour of Western political influence, it also provided the basis to respond to an escalation in tensions, including any potential land-based conflict, with a corps-sized Combined Joint Task Force (CJTF).

Supporting the CJTF is the latest iteration of a machine-learning ChatBot dubbed 'DC' that provides automated public affairs updates and pro-US coalition targeted messaging to global governments, media outlets and large social media sites. DC was supported by military cyber elements from the Five Eyes nationalities to trial DC's potential in both intelligence collection and information operations. Additionally, Australia, Britain, Canada, France, Japan, Malaysia, New Zealand and Singapore joined the US in committing ground forces to the Philippines, Japan and Papua New Guinea for partnered training operations, and to exercise their freedom of navigation in the South China Sea and surrounding maritime zones. These elements possessed tactical cyber units whose role was to enhance the host nation's cyber defence capabilities, as well as to conduct digital reconnaissance for DC and counter any Chinese People's Liberation Army (PLA) cyber activity.

On 15 March 2025 tensions escalated when, simultaneous to the ongoing military exercises, the PLA conducted military rehearsals of a similar scale to those witnessed after Nancy Pelosi visited Taiwan.[9] In response, the US shifted the position of its maritime task forces closer to the first island chain and increased its deployment of air task groups into key strategic air bases in the Philippines, Malaysia and Japan. On 26 April 2025 the CCP's Maritime Militia disrupted maritime movement around Singapore and the Indonesian islands of Bintan and Batam by harassing local economic shipping. Civil unrest followed in the months of April, May and June across Vietnam, Laos and Malaysia, promoted by CCP-sponsored criminal groups and an extensive anti-government campaign driven by influential online personalities (sponsored by the UFWD) that had been running for several months. Shortly afterwards, discontent erupted in Papua New Guinea and Solomon Islands, albeit with less social impact.

Over the same period, numerous ChatBots began a disinformation campaign about the Spratly Islands disputes. By exploiting cultural beliefs, trends, and topics of interest, the ChatBots successfully inflamed public emotions around beliefs in the West's actions, which in turn began to polarise the abovementioned nations' stance towards the US-led coalition's behaviour.[10] The situation was exacerbated by a successful hack against DC. This hack compromised the integrity of the ChatBot's data and implanted misinformation into its databases in a way designed to exploit political fault lines within the US community. These actions would ultimately lay the foundations for the public distrust in Western political and economic organisations that would build over the coming days.

Today is 28 November 2025.

Thirty-four days ago, a US strategic surveillance asset was lost over Singapore while monitoring the Spratly Islands. After a failed recovery operation, it was ascertained that the asset was grounded by a cyber-attack that originated in Macau. The asset was recovered by CCP Maritime Militia. Damage control measures were enacted by the US but not before several secret compartments may have been breached through a combination of the asset's connectivity to the US satellite system and a zero-day vulnerability identified in the Microsoft SharePoint software used within the US's Secret Internet Protocol Router network.[11] The assumption that the US Department of Defense's secret information technology had

been breached by a zero-day vulnerability, and conjecture about whether China truly possessed the capability to breach US satellite security within the time frame, paralysed US decision-making. Consequently more drastic security controls, such as complete network closures, were delayed.

Twenty-three days ago, on the evening of 5 November, a suspected CCP psychological operations campaign was launched across many news networks (both Western and Eastern), as well as across multiple online news and social media platforms. Based on disinformation promulgated through this campaign, many international headlines declared that US coalition regular and Special Forces had committed war crimes in Manila and Ho Chi Minh City. Later the same evening, unidentified forces launched attacks on coalition bases at Clark Air Base, at Subic Bay and against the Philippines Joint Task Force National Capital Region headquarters in Manila.

Breaking international news on the morning of 6 November showed video footage of the alleged attacks. The reports displayed coalition forces in contact with fleeing Filipino civilians. No recognisable insurgent or threat forces appeared throughout the imagery. Most concerning to Western nations, even the headlines of reputable news services reinforced the previous evening's reports of coalition war crimes. For well-informed observers, the media coverage was clearly unbalanced. Nonetheless, it resonated widely across the globe. In response, the US strongly denounced the reports as fake and launched an investigation into the facts to buttress its position. The US's public announcement of the investigation was immediately followed by media reports of voice recordings from coalition commanders that included verbal commands to 'execute the prisoners' and 'shoot anyone to our front'. The recordings were provided to the BBC and SBS via emails from their own organisations' news reporters located in the Philippines. Within 24 hours, the news outlets acknowledged that their reporters' email accounts had been hacked.

US analysis of the voice recordings has quickly established that the transcripts were captured from combat radio nets, satellite communications transmissions, and personal phone calls that were relayed through CCP-compromised satellites and business infrastructure local to Manila, including the 5G cellular network. When the individuals who allegedly made the commands were questioned, they recognised their voices and confirmed they spoke elements of the transmission. However, they strongly deny any

wrongdoing. Officials believe that the voice recordings have been modified. Regardless, they have proved convincingly real, and both public and government confusion is hindering an effective and unified response.

Unknown to the US, the source of the recordings was a specialist cyber unit of the PLA – Unit 61398. This unit used digital transmissions of coalition ground forces (that had been captured from radio, satellite and internet-based communications) and then modified the raw data to generate statements that supported the 'killing civilians' deception. The majority of this work was conducted in real time by an AI algorithm that had developed a database of captured transmissions and was monitoring all news services worldwide.

At the same time, families of soldiers deployed to Manila have begun receiving phone calls from 'US officials' (in reality, fluent and articulate English-speaking members of the CCP provided with phone numbers captured through a cyber-attack and aided by information obtained in the Predator drone exploitation). In these calls, family members are advised that their relative is under investigation for war crimes and are asked to call an official hotline if their serving relative contacts them. Simultaneously, social media platforms and UFWD-influenced media outlets have published a list of names of soldiers under investigation for war crimes. Included in this list are the names of the soldiers and commanders featured in the voice recordings. The perceived veracity of these recordings has been further reinforced by the public release of a deep-fake video communiqué showing the Joint Task Force commander issuing arrest warrants for these suspects.

With time, the facts have revealed themselves. However, many people still question the truth. This situation is exacerbated by ongoing media stories that continue to discuss the situation (fuelled by numerous AI algorithms). Many experts push strongly to discredit the Chinese IO campaign; however, the speed of the campaign's execution has made this very difficult. Furthermore, since the height of the incident, the political and military decision-makers of all Western nations involved have been purely responsive and defensive, degrading their ability to regain the initiative in the situation.

In the last 48 hours, internet access in southern Japan, Hong Kong, South Korea and Taiwan has been cut, while a Wall Street hack has inserted a modified automated trader algorithm that has instigated a $1.5

trillion collapse. Additionally, global marine traffic services have been hacked to show a large flotilla of Chinese cargo and military ships moving north to the seas around Taipei. Simultaneously, real cargo vessels with Singaporean RFID markings have disgorged ground forces inside Kaohsiung City port. The forces have commenced seizing their immediate area and establishing A2/AD capabilities. Earlier today, the Singaporean Prime Minister publicly denied any Singaporean involvement and blamed the CCP. This denial was quickly followed by a second public statement (a deepfake) by the Prime Minister, retracting his initial denial and claiming instead that the Singapore Armed Forces (SAF) had 'gone rogue'.

Six hours ago, it was confirmed that the Kaohsiung City attackers were members of the PLA dressed in SAF-pattern camouflage uniforms. The confusion has bought the PLA approximately 12 hours, which may prove decisive in the coming days.

Information Operations

Information warfare, information support operations, information environment, psychological operations, electronic warfare, public affairs, strategic communications, and cyber space operations are terms commonly used in the context of IO and have their genesis in the 20th century. Despite the relative infancy of these terms, IO is as old as warfare itself. One of the oldest written works of Western literature, the *Iliad*, discusses the Greeks' use of deception (a form of IO) against the Trojans by building a large horse as an offering to Athena for their transgressions at Troy.[12] Unfortunately for the Trojans, the Greeks had not fled the field of battle and their offering contained a deadly cargo. Similarly, the much-quoted strategist Sun Tzu described all warfare as deception, alluding to the fact that all warfare combines the use and misuse of information, supported by martial skill.[13]

Examples of deception and information manipulation permeate history and demonstrate that IO is not merely an addition to warfare or a modern concept. Rather, it is integral to the very nature of warfare, competition, and even cooperation. All wars are influenced by IO, just as they are by manoeuvre. The United States Army's latest operations doctrine highlights the advantage the information dimension offers to friendly force manoeuvre, denying the same advantage to the enemy, and how

movement and manoeuvre are interwoven with IO as they mutually support one another.[14] Indeed, the relevance of information and influence to the effective prosecution of military operations is so pronounced that some commentators have claimed that IO should be the hub from which all other components of military operational support radiate.[15] Whether or not this assertion is firmly founded, it illustrates that IO remains highly relevant to the successful conduct of contemporary and future operations.

Notwithstanding the unpredictability of world history, one enduring observation can be made based on events of the last century. Specifically, the transition between conflict, competition and cooperation can be swift and sometimes simultaneous. It has never been linear or evenly spaced in time.[16] This truism is unlikely to change, but the speed at which transition occurs is set to hasten, particularly given the unprecedented global proliferation of information technology. Due to this rapid change, predicting the nature of warfare is possibly more difficult now than it has been during any other period in human history. Yet what is predictable, with a high degree of certainty, is that the threat from foreign information operations will increase, necessitating that all nations compete in the information environment.[17]

To compete in the future strategic environment requires effective IRCs. Two of the IRCs which stand to improve the most from enhancements to AI technology are psychological operations (PSYOPS) and cyber operations. Combined with powerful computing power, and advanced AI algorithms, these IRCs could produce a truly unique and disruptive capability – an AI IO machine. To explain why, this paper will consider the relevance of each IRC to near-term future operations. This analysis will provide the basis for further discussion about the potency of AI.

Artificial Psychology

PSYOPS is concerned with influencing others and is often combined with deception to blend truth and fiction. The purpose of PSYOPS is to cause the target to take actions that support the accomplishment of the friendly mission.[18] PSYOPS has been an enduring element of warfare and manoeuvre since mankind began considering warfare as a profession.

In the modern era, PSYOPS is routinely incorporated into offensive support. The purpose of offensive support in military options is to apply 'cannon,

rocket and missile fire as well as [to help] integrate all lethal and nonlethal fire support assets into combined arms operations'.[19] Planning offensive support is often referred to as 'targeting'. PSYOPS contributes to targeting by providing information concerning cultural sensitivities, providing messaging towards friendly and threat forces (divisive or cohesive) and countering enemy propaganda.

Throughout the targeting process, PSYOPS provides a range of support to military decision-makers. For example, it provides information concerning the potential cultural impacts of proposed targeting missions; assists in target location using local information collection, as well as provoking the target to reveal itself; delivers deception effects that, in turn, support the delivery of lethal fires or that disrupt the threat's manoeuvre or tempo (the ability to act more quickly than an opponent); protects friendly capabilities by spreading misinformation about the force's capabilities and locations (for example); reduces the risk of civilian casualties by informing the need to encourage their departure from target areas; and reinforces the success of a targeting mission (demoralising the threat after a successful fire mission, for example).[20]

Another developing area of PSYOPS is diplomacy and reputational manipulation. This aspect of PSYOPS refers to 'the act of creating a false belief that an event has occurred to influence geo-political decisions'.[21] Modern AI networks can produce fake media that blends video and audio with incredible realism and distribute such media at a speed that ensures the information environment can be saturated with false information quickly.[22] Such fakes can take the form of media fabricated from scratch, or what are coined 'deepfakes' which involve superimposing the target (most commonly their face, and to a lesser extent their voice) onto other media to discredit them.[23] Contemporary technology is sufficiently well advanced to create impersonations of anyone, but the quality of the media generated is directly related to how much original content is available. For example, at present, hours of recorded video of a target's face are required to generate a credible short-time-frame impersonation.

The ease with which audio fabrication can be achieved is improving at a particularly rapid rate. Audio fabrication was perhaps first highlighted in 2017 by the speech synthesis technology Lyrebird, which generates lengthy imitation clips from as little as one minute of recorded audio. Now, in 2023,

the software VALL-E can imitate voice with as little as three seconds of a sample.[24] Moreover, technology capable of creating fake but authentic video and audio can now be achieved with standard consumer-level hardware, granting anyone with access to cheap computing technology the power to generate convincing fake media.[25] Even without video and audio, modern AI ChatBots (discussed further below) can create convincing information that can flood the internet rapidly.[26]

The potential for these capabilities to disrupt the reputation of key leaders of organisations and to inflame societal tensions is self-evident. For example, a credible and well-planned deepfake campaign could influence elections and aggravate political tensions, potentially changing democratic elections.[27] Further, as it becomes increasingly difficult to discern real from fake products, authorities may encounter decision paralysis. For instance, if a brigade commander's voice (or worse, face) were convincingly mimicked, the potential would exist for their orders to be ignored, questioned or – worse still – executed. Until the truth was confirmed, the risk of military miscalculation would be unacceptably high. Beyond the political and military context, far-reaching consequences of such technology extend to government policy-making, legal and judicial systems, and even health care, including the administration of drugs and treatments. Further, the number of adolescents who access the internet is increasing.[28] Ethical considerations aside, readers should ask themselves what would be the impact of AI-driven influence campaigns against a population's teenage youth – then consider that such influence already occurs from digital marketing, rendering it difficult to see how military or government IO could not also play the same game. Of course, none of this would be possible were it not for the near omnipresent access to the cyber domain around the globe.

Cyber Operations

Uniquely the cyber domain permeates all other domains, linking them together in an unprecedented fashion.[29] Unlike the other domains (land, sea, air and space), which make physical contact with one another and can influence each other with a physical attack, the cyber domain has no physical presence. While information technology creates connections and interfaces with cyber that allow the other domains to 'touch' it, the cyber

domain remains 'not real'. Put another way, physical computer systems can be destroyed – severing the physical link *to* the cyber domain – but the data contained within may be backed up on another system, thereby rendering it immune to physical attack.[30]

Attacks conducted through the cyber domain can readily disable physical equipment. For example, they could force a Joint Strike Fighter to crash or drop its weapons early, thus physically influencing other domains (the air domain, in this case).[31] In this new operating environment, actions traditionally isolated within one domain (such as land) can now be simultaneously linked through cyber warfare to another (such as the sea) thus generating new military effects and commensurate vulnerabilities.

As they are able to be generated using low-skill workers and at low production costs, it is no surprise that the future will only see cyber threats increase in pervasiveness.[32] If the 'internet of things' continues to evolve at its current rate, the future cyber environment will contain trillions of connections, each of them providing a vector for an attack, information collection, or influence.[33] In such a world, the threats posed by malicious software include corrupting information; destroying critical IT infrastructure; collecting information; deploying false information; securing communications links to gain access to information deeper in the network; acting as a 'digital deception'; and targeting life-support functions (such as subtly increasing air conditioning temperature to agitate the human workforce) – among other creative uses. These threats could come from states of all relationships, criminal or terror groups, issue-motivated groups, or civilians – not unlike what has been demonstrated, and is expected, from hybrid warfare and the increasing use of social media.[34]

Social media is an important consideration for IO and how influence can be generated in the cyber information environment. The rapid growth of social media over the last 15 years has demonstrated its potential as an exceptional repository of information and a communications node with global reach. Being information dense, social media platforms contribute immensely to the information environment, which benefits and disrupts IO efforts. For example, the information presented publicly on social media can readily generate viable and effective influence effects. After all, as has been observed that '[o]n any given day, there are up to 3.9 billion people online, all theoretically within range of a meme'.[35] Information obtained from social

media is increasingly likely to support the creation and understanding of network maps concerning individuals and organisations. This in turn will support better understanding and preparation, or shaping, of the operating environment and strategic influences.

Artificially Intelligent Information Operations

Machine-learning algorithms have incredible potential to support all facets of IO. Consider, for example, the capabilities of modern data prediction capabilities utilised by many commercial organisations. We see their effects daily in browsing recommendations, targeted advertisements, social media content, suggested online searches, and 'helper' software generated by products such as Google and Siri. While these are already impressive examples of machine learning in operation, with further technological improvements it may not be long before algorithms can create a plausible online replication of an entire human.[36] One contemporary example of an AI that can have realistic human conversations is ChatGPT. Released in November 2022, ChatGPT utilises natural language processing (NLP) to engage in conversations with users, answer questions, and even create articulate poetry and lyrics.[37] The convergence of NLP-based AI algorithms and those with the capability to replicate voice, such as VALL-E, creates a situation never before witnessed in computational technology and IO. The ever-increasing computing power of information technology means creating digital humans may not be as fictional as it once was.

The processing capability of modern computers enables AI IO machines to support intelligence collection by sorting and filtering through vast collections of information at breakneck speed. Indeed, the pace at which AI can potentially achieve influence effects surpasses anything previously attainable by traditional mediums, such as print or radio. Within the context of modern conflicts, such technology has significant potential if it is harnessed to collect information on targeted individuals and groups. AI, therefore, can understand culture thanks to the vast array of freely available data, rendering it capable of predicting how to best influence any population that has a presence on the internet. For example, AI could gather open-source information from social media to predict the sensitivities of a target audience and thereby maximise the likelihood of a provocative response as a planned outcome of an influence operation.

The strategic reach of AI IO machines is akin to that of other military 'deep strike' capabilities – capable of reaching populations, states and non-state actors regardless of physical borders. However, unlike traditional deep-strike capabilities, the AI IO machine has greater potential to divide a target population – creating rifts based on ethnicity, culture, nationality, gender, sexuality, political alignment, associations, or employment – instead of uniting them against a common threat. The potential disruptive effect of such a capability can be illustrated when contrasted with the German blitzkrieg mounted against the English population during World War II. Intended by Germany to degrade the will of the English people (a relatively common IO objective), the bombings of London and other strategically important cities only served to unite the British people under a single, shared hardship.[38] The intended IO effect failed because Germany did not understand the British mindset; nor could it monitor the psychological impacts of the bombings in real time. The result was that Germany could not have appreciated that continuing to bomb the British population only served to galvanise their resistance. Yet in the 21st century, anyone can access social media, online and 24-hour news, memes and other internet mediums to understand and assess manipulative effects on a population. A modern Blitzkrieg could just as easily occur through the digital bits of the internet as through the forest of the Ardennes in 1940, akin to what the thought experiment highlights.

While having the capacity to operate as an offensive capability, AI has a defensive function too. Specifically, it can assist military forces to counter 'disinformation' campaigns. Algorithms to detect fake media (such as deepfakes) would certainly benefit a defender – particularly if they could operate in a sufficiently timely way to counter the potentially disruptive effect of fake media. AI could also be used to effectively censure fake information on social media platforms by de-emphasising its importance and minimising its publication on any given media feed. Notwithstanding AI's potential to support defensive operations, however, militaries seeking to capitalise on the capability will face the same challenges that arise with many other more conventional countermeasures – the attacker always holds the initiative. Specifically, once AI is used to counter disinformation, the capability can be analysed and overcome by the offensive force.[39]

Linking It Back and Implications for Australia

Based on this paper's analysis of current and emerging technology, and speculative future concepts, the thought experiment scenario presented here is neither unreasonable nor unfeasible. While the hypothetical IO campaign described would require sophisticated technology-enabled capabilities, able to breach many layers of a coalition force's security, and a degree of chance, it is nevertheless possible. Future advances in computing power will increase an AI algorithm's power to monitor the internet to calculate social trends, generate plausible fake news, and predict and influence the actions of groups, societies, or even nations.[40] With this information, the scenario showed that a nation could position itself to disrupt government and military decision-making through information overload, degrade unity by exploiting known cultural or political schisms, provoke responses through misinformation, diffuse adverse situations through information fatigue, confuse the population with fake media and messaging, and deceive military commanders.[41] Furthermore, it can do so simultaneously and in a time frame that cannot be matched by human decision-making. Clearly, such a capability has the potential to provide a distinct asymmetrical advantage, which is why the race to develop one is very real.[42] It would pay for the Australian Army to ensure it maintains pace with the competition.

Given that Australia no longer possesses the economic and military advantage it once did, in a future conflict it will probably face an adversary of greater power.[43] To fight in such a situation would require what prominent Australian defence analyst Dr Albert Palazzo defines as a strategy of aiming 'not to lose' – that is, centred on maintaining the status quo.[44] Such a strategy is well aligned with the 2020 Defence Strategic Update's objectives of 'shape, deter, respond', which is essentially a strategy of deterrence by denial. For Australia, any AI IO capability will never provide a decisive advantage. Australia simply cannot outpace regional competitors in the information technology field (unless, of course, it realigns its educational and economic investment). Rather, AI IO is relevant to Australia to simply ensure it maintains pace with the world, can shape our strategic environment instead of being able to compete in absolute military power, and can keep Australia operational in the global IO theatre.

To deter by denial, Australia must be able to project itself forward into the Defence Strategic Update's defined primary area of operations, and it must be able to do so in the information dimension across all domains.

Australia has always recognised the need for forward presence and influence, which is why it has historically placed such importance on international engagement – so that it can form coalitions and have regional access to key terrain along the approaches to Australia.[45] In the future, AI-enabled IO would significantly contribute to international engagement by shaping perceptions of Australia's actions and its relationship with other nations, as well as understanding the politics and decisions of others (and ourselves). Additionally, AI IO would also play a key role in shielding any force projection by helping hide it from an adversary's pervasive physical and digital surveillance. Yet Australia's competitors are like-minded and already conduct the same types of influence operations. One only needs to turn to China's actions since the turn of the century to witness such competition.[46]

Australia will never be able to directly compete with military powers larger than itself, and in the grand scheme of the Indo-Pacific, Australia is a relatively minor military power. To be able to remain competitive, and be able to influence important unaligned regional powers, it must seek an advantage outside of raw military power. Such a deficiency is where AI-enabled IO could help Australia thrive. Recently the Australian Army published a Robotic & Autonomous Systems (RAS) Strategy, which goes a long way to codifying how the Australian Army will adapt to the emerging AI trends and includes collaboration with Microsoft Corporation.[47] The RAS Strategy highlights AI's potential for using information for improving awareness, prediction and collaboration.[48] Yet analysts have criticised these efforts, noting they will serve to ensure the Australian Army will 'do things better, but it won't necessarily be able to do better things'.[49]

Despite highlighting the importance of developing key capabilities to gain a competitive advantage (aka a capability offset), the RAS Strategy remains focused on individual soldier performance, decision-making, human-machine teaming, protection and efficiency. There is no mention of using AI (or RAS) to enhance IO, which is a potential deficiency. Yet encouragingly, the RAS Strategy not only aptly highlights the need to train and sustain personnel with AI skillsets inside the Army but also recognises the need to improve understanding and 'literacy' in relation to AI across the entire force.[50] The Australian Army has clearly identified the need to act to prepare for and capitalise on AI's potential. It would be prudent to ensure that the implementation of the strategy includes an appreciation of how Army will use AI to enhance IO, as evaluated in this paper.

Conclusion

Future AI, accelerated by computing power advances, promises to enhance the use of information, and IO, exponentially. The first nation or organisation to produce an AI IO machine similar to that discussed will possess an information power beyond anything that mankind has previously witnessed.[51] As highlighted by the thought experiment, such power harnessed to drive an AI IO system could create an information environment that overwhelms an opponent's ability to understand the truth and make sense of the world, creating distinct tactical, operational and strategic advantages. The thought experiment scenario is not an attempt to predict a specific event, but rather intended to unshackle the reader from the concept that history is destined to repeat itself and help them begin to visualise just what might (and might not) come to be.

By exploring the AI IO concept, this paper has evaluated how the Australian Army can utilise AI to ensure it remains competitive in the 21st century information environment. What remains outstanding in this discussion is ethics – something that most certainly constrains the application of AI to IO, and is heavily dependent on culture. Investigating the ethics of AI is a very big discussion and beyond this paper, but it must occur should the ideas presented be taken further. Yet two things are for certain. The first is that technological advancements and societal trends mean the information environment will only grow in density and complexity, offering both opportunities and challenges on a scale that has never existed in previous conflicts. The second is that AI will almost certainly have a critical role to play, particularly as businesses and organisations seek to capitalise on AI's potential to enhance their bottom line. The nation, or non-state actor, that first succeeds in harnessing this capability will possess an overwhelming advantage, the likes of which have not been seen since the United States alone possessed the almighty power of a nuclear arsenal. Whether it wants to or not, the Australian Army is entrenched in a race towards obtaining an AI-enabled advantage for IO. It would be wise to ensure it doesn't fall behind.

Army Commentary

Callum Muntz's piece provides a provoking insight into the value of artificial intelligence (AI). The scope and depth of the impact of this suite of technologies is starting be felt both within and externally to Defence

– some of the influence of chatbots on social media has been a topic of very public scrutiny. The blurring of the provision of accurate information and timely understanding through the use of AI agents creates significant uncertainty and may deliver the decision paralysis that is alluded to in the piece. However, this may only be a transient opportunity as the countering and detection of such AI as deepfakes are developed. The importance of certified AI model training data, testing standards and cyber-worthiness are all known challenges to ensure that systems are robust and trustworthy. AI is but part of a suite of tools including data analytics and cloud computing techniques that will enhance a future force.

In the manoeuvrist approach we seek to undermine the will of the adversary at all levels. IO tools as proposed could be a significant enhancement. In some areas the technology is more advanced than the author portrays, so the need to seize the opportunity as well as developing the counter is key. Of course, access to the target audience is critical to achieve the penetration that IO may seek to have. The current Ukraine war aptly shows how limiting access to social media, for example, can reduce the impact of IO; Russia has managed to retain broad support for its war domestically through this means. So even with the AI tools proposed there is no certainty of success.

Army is currently exploring the role of AI as an enabler in a number of areas including autonomy and decision advantage; as the author articulates, the RAS Strategy is a start point. The Army Quantum Technology Roadmap also serves to highlight the potential for quantum technologies including computing. While the article takes a narrow view of the application of these technologies, the implementation and supporting services to enable such outcomes should not be underestimated.

This is a thought-provoking article that shines a light on an application of AI that could provide opportunity.

RC Smith OBE, CSC
Colonel

About the Author

Major Callum Muntz is a proud father, husband, and infantry officer currently serving with the United States Army in their I Corps Headquarters.

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The Case for Cluster Munitions: Amend or Withdraw from the Convention on Cluster Munitions

James Saint

Introduction

In December 2022, CNN reported that Ukrainian defence officials had been lobbying for 'many months' to be provided with US stocks of Dual Purpose Improved Conventional Munitions (DPICMs). While the request has not yet been satisfied, its existence indicates that Ukraine, despite its considerable military successes against Russia, considers cluster munitions to be necessary in its war effort.[1] By contrast, Australia rejected the use of cluster munitions on 4 December 2008 when Defence Minister Stephen Smith signed the Convention on Cluster Munitions (CCM). In doing so, he stated, 'This new humanitarian treaty prohibits the use of cluster munitions that inflict enormous suffering and damage on civilians'.[2] Explaining the ratification decision to Parliament, Stephen Smith asserted that '[t]he government has conducted a thorough policy, legal and technical review of the convention'.[3] The CCM was the culmination of a series of multilateral conferences in Oslo on 22 and 23 February 2007, known as the Oslo Process.[4] Participants at the Oslo Conference cited the enduring and catastrophic effects of cluster munitions unexploded ordnance (UXO) in Vietnam, Southern Lebanon, Serbia and Iraq.[5] Since then, the CCM has achieved 110 states parties and 13 signatories, predominantly concentrated

in Western and Southern Europe, Sub-Saharan Africa and Latin America.[6] Conversely, a state's decision not to sign the CCM strongly correlates with the holding of cluster munition stockpiles – notably including the United States of America, Russia, Ukraine, China and many countries in Eastern Europe, the Middle East, North Africa and Asia.[7]

At the time, the Australian Defence Force (ADF) response to ratification of the CCM was muted. The Chief of Defence Force (CDF), Angus Houston, argued only that measures may be needed to preserve Australia's interoperability with the United States if (as a non-signatory to the CCM) it chose to use cluster munitions.[8] He also observed that Defence's Strategic Policy and Guidance Branch had overseen the Dublin Diplomatic Conference which negotiated the CCM, and were 'pretty comfortable with it'.[9] Since Australia's ratification of the CCM, there has been little reason to revisit its rationale and the tight restrictions it imposes upon the ADF. The intervening period has been an era in which precision-guided munitions have been successfully deployed in small wars of regime change and counterinsurgency.

The purpose of this article is to challenge the status quo. It comes in response to rapid technological advancements in cluster munitions and their evident military utility in state efforts to remain competitive in response to the resurgence of Great Power competition. The article examines contemporary cluster munition technology and reviews the basis upon which the CCM proscribes their use. Based on this analysis, the article concludes that contemporary cluster munitions are a highly suitable and effective weapon in armed conflict, and that amendment to the CCM, or Australia's withdrawal from it, is a necessary measure to buttress Australia's national security.

The Need for Cluster Munitions

Army's Accelerated Warfare concept describes a future operating environment characterised by increased geopolitical competition and conflict, where the rules-based international order is at threat.[10] Russia's invasion of Ukraine foreshadows an increased probability that the ADF will be involved in conventional and peer-on-peer conflict in the future. At the time of writing, the Ukrainian army is reported to be firing 2,000–4,000 artillery shells a day in its war with Russia.[11] While it is difficult to verify these

reports based on open-source material, Ukrainian and Russian online sources indicate that the use of cluster munitions remains common and particularly effective.[12]

While not strictly cluster munitions, Ukrainian artillery fires have been used effectively to achieve massed area effects in defence against armoured attacks. These systems were instrumental in the defence of Kiev in March 2022. Using tactics of precision direct fire anti-tank rockets against lead vehicles of Russian armoured columns, the massed artillery fire delivered by two Ukrainian artillery brigades destroyed the remainder of the halted Russian columns.[13] Given these tactical successes in area defence operations, it is little wonder that Ukrainian officials have requested DPICM and High Mobility Artillery Rocket System (HIMARS) cluster munitions from the United States, citing their superior lethality and capacity to target increasingly dispersed Russian personnel and vehicles.[14] If states learn from Russia's mistakes and disperse their forces appropriately, cluster munitions will be increasingly necessary to defend against such geographically separated ground forces.

Beyond current events in Eastern Europe, this conclusion also applies to states in the littoral, archipelagic region of South-East Asia and the South Pacific, where cluster munitions hold considerable military potential for Australia and its friends and allies. For example, cluster munitions would be highly effective in the denial of large area targets such as air bases and seaports, and in the disruption of dispersed and difficult-to-acquire targets in complex jungle and littoral terrain. In these environments, precision-targeted munitions have considerable limitations. Specifically, generating a target coordinate with high accuracy and reliable inputs such as GPS will be challenged by electromagnetic spectrum operations such as GPS jamming and spoofing.[15] When a weapon system can apply highly lethal area effects across a wide area, an inaccuracy of hundreds of metres will detract significantly less from the effectiveness of the weapon.[16] In the event of a rapidly deteriorating future operating environment, the Australian Army must be capable of employing massed area effects for Australia to remain strategically competitive.

The Effectiveness of Cluster Munitions

Any proposal to revisit the provisions of the CCM needs to be founded on a clear understanding of the specific technical advantages of cluster munitions such as DPICM. DPICM are artillery and rocket munitions which the United States developed in the early 1950s to attack varied target types with fewer munitions expended.[17] DPICM carry anti-personnel grenades and anti-armoured shape charge submunitions in a base-ejecting canister which are dispersed over a wide area.[18] DPICMs have been the subject of mythmaking since the Gulf War, where senior military figures perpetuated a false narrative of Iraqi prisoners reporting their fear of 'steel rain'.[19] Beyond these myths, however, the reality is that DPICMs have a proven record of operational effectiveness.

- **Area Effects.** While there is a paucity of unclassified studies comparing the area effects of DPICM (and other cluster munitions) against high-explosive (HE) munitions, much can be determined from the reported effects radius of comparable weapon systems. Specifically, the in-service HE unitary M107 and M795 rounds have a 100 per cent kill radius of 20–30 and 30–60 metres respectively, according to open-source material.[20] Army's Land Warfare Pamphlet (LWP) *Target Engagement, Coordination and Prediction – Duties in Action* provides the classified effects data of both of the in-service HE rounds, M107 and M795.[21] By comparison, field artillery capability analyst Lieutenant Colonel Michael Jacobson attributes a 10-metre lethal radius to each of the 88 submunitions of the M483A1 DPICM, spread over a dispersion area of one to three hectares dependent on height of burst.[22] Further, open-source material reports that M26 rockets deployed previously by the United States Multiple Launch Rocket System (MLRS) spread 644 M77 submunitions across a 200 metre x 100 metre area, with each submunition capable of killing or wounding within a 4-metre radius.[23] While MLRS warheads typically have hundreds of submunitions (which significantly increases the likelihood that some munitions may fail to explode on impact), the M30A1 warhead currently being deployed in Ukraine disperses thousands of tungsten balls over about 400 metres x 200 metres without any secondary detonation required.[24] While achieving significantly greater area effects compared to HE munitions, this characteristic means that the M30A1 warhead is far less likely to offend social and political sensibilities around the risk to civilian communities of UXO.

- **Lethality.** The superior lethality of DPICM is clearly demonstrated by testing and research conducted by the United States. Unclassified test results demonstrate that the M449 DPICM achieves a 31.9 per cent likelihood of achieving a casualty – four times the 7.9 per cent likelihood achieved by an M107 HE round.[25] In another unclassified study, the combat effectiveness of the 155mm Improved Conventional Munition (ICM - the earlier, anti-personnel variant of DPCIM) was compared against conventional rounds in Vietnam. The study showed that the 155 mm ICM achieved 1.7 rounds per kill, compared to 13.6 rounds per kill for conventional 155 mm.[26] This fourfold increase in lethality offers a strong basis to argue that cluster munitions are worth any short-term political consequences of amending or withdrawing from the CCM.
- **Dual Purpose.** The dual purpose and area effects capability of the M483 DPICM by comparison to the HE M107 was proven during live-fire testing conducted by the United States. Table 1 outlines the results achieved by live fire testing against a target of numerous threat types.[27] It illustrates the increased lethality and effectiveness of DPICM against hardened targets such as tanks and armoured personnel carriers (APCs). It also demonstrates the effectiveness of cluster munitions to achieve area effects against small targets (e.g. the six anti-air guns). Reinforcing the lethality of cluster munitions against armoured targets, Lieutenant Colonel Jacobson states that '[g]enerally, 10 or more bomblet strikes are required for an armored-vehicle kill, but a single bomblet can result in a firepower or mobility kill'.[28]

Table 1 Results of live fire testing against a target of numerous threat types

		Hits					
	Total Rounds	Three Tanks	Six APCs	Eight Trucks	Six AAs	One Jeep	Total Hits
DPICM M483: 155 mm	145	47	69	45	5	7	173
HE M107: 155 mm	432	2	4	2	0	0	8

Assessing the Convention on Cluster Munitions

Australia's ratification of the CCM in 2008 was driven by the argument that cluster munitions have a disproportionate and inhumane effect on civilians. As observed by the United Nations Office for Disarmament Affairs, 'Cluster munitions have a 'wide-area effect', which makes them inherently inaccurate when used'.[29] During a debate in Parliament over Australia's ratification of the CCM, Senator Scott Ludlam stated that 'cluster munitions are one of the most inhumane forms of weapons from a humanitarian, medical and ethical perspective'.[30] As explained by the preamble to the CCM, the concern that the CCM sought to address is 'the suffering and casualties caused by cluster munitions at the time of their use, when they fail to function as intended or when they are abandoned'.[31] The provisions of the CCM include more detailed descriptions of the threat of indiscriminate casualties caused by UXO, as well as the ongoing post-conflict impacts.

A cluster munition is defined by the CCM as 'a conventional weapon that is designed to disperse or release explosive submunitions each weighing less than 20 kilograms, and includes those explosive submunitions'.[32] Article II of the CCM allows for certain munitions that disperse explosive submunitions, provided they meet the following criteria:

1. fewer than 10 explosive submunitions
2. weighing more than 4 kilograms
3. designed to detect and engage a single target object
4. equipped with an electronic self-destruction mechanism
5. equipped with an electronic self-deactivating feature.[33]

This definition prohibits the use of DPICM and MLRS cluster rockets, permitting only specific guided sensor-fused munitions.

The basis upon which certain munitions are excluded from the prohibitions imposed by the CCM is largely arbitrary, is exceptionally restrictive and fails to address the problem of UXO. Specifically, the initial three criteria have no relevance to the likelihood that a cluster munition will generate UXO. Additionally, the initial two criteria are entirely arbitrary – raising doubt among academics about their correlation with principles of proportionality and distinction.[34] To illustrate this point, it is instructive to consider several examples. For instance, based upon the CCM's proscriptions relating to number and weight of submunitions, a warhead containing two 4 kilogram

HE guided submunitions is banned by the CCM, whereas another warhead containing nine 4.01 kilogram guided submunitions is acceptable. Equally, the criterion is incongruous when compared with, for example, the potential impact of GBU-43/B Massive Ordnance Air Blast (MOAB) or the 70,000 lb maximum theoretical payload of a B-52.[35]

Further, the third criterion (requiring that submunitions be designed to detect and engage a single target object) is exceptionally restrictive. Such a constraint is not imposed on any other munition type, meaning that weapon technologies that are arguably more destructive than submunitions (such as high-payload air-delivered bombings and incendiary weapons) are not subject to such restrictions.[36]

Based on these considerations, the first three CCM criteria should be discarded in favour of more direct and measured restrictions aimed at reducing the spread of UXO. Indeed, the removal of these criteria from the CCM should be a prerequisite for Australia's continued accession to the CCM.

Only the fourth and fifth criteria directly address the risk posed by UXO – requiring each explosive submunition to be equipped with an electronic self-destruction and self-deactivating feature. These prohibitions should be tightened through the specification of minimum acceptable failure rates for self-destruction and self-deactivation features of cluster munition types held within a state party's military's inventory. Such measures would directly and measurably address the problem of UXO and would strengthen the CCM's purpose, incentivise improvements to cluster munitions fail-safe technology and disincentivise continued use of less reliable legacy munitions.

The next part of this paper will review the issues surrounding failure rates of modern cluster munitions and the degree to which such munitions can properly be criticised as having an indiscriminately wide-area effect.

The Problem of Unexploded Ordnance

The problem of UXO is a function of the high failure rate and lack of a self-destruction capability of many cluster munition types. While figures vary, manufacturers often assert a 2 to 5 per cent failure rate, while mine clearance specialists are more likely to estimate figures of around 10 to 30 per cent.[37] Regardless of the actual percentage, it is difficult to pinpoint a failure rate that

might be regarded as 'acceptable' within the international community. In the absence of clear guidance, the Law of Armed Conflict (LOAC) provides a useful frame of reference. Specifically, it is arguable that any self-destruction or self-deactivating feature should achieve a measurable failure rate that complies with the rules against indiscriminate use of force that are enshrined in international humanitarian law. To determine what that rate should be, this article uses deductive comparisons.

In the following section, the failure rate of cluster munitions is compared to that of other HE munitions for which no specific restrictions on use are imposed by treaty. Instead, their use is governed broadly by international humanitarian law.

- **Grenades.** The example of grenades demonstrates that despite high failure rates, many munitions remain unrestricted. For example, reporting from India suggests that there exists a 30 per cent failure rate of some grenades.[38] Grenades likely remain unprohibited due to the lower numbers of grenades and low reporting of UXO issues associated with grenades. The example of the grenade could be justly criticised due to the incomparable numbers of submunitions typically employed vis-à-vis hand grenades.
- **2.75 inch rockets.** While rockets comprise individual (not sub) munitions, the rapid pace at which they are fired, and their area effect, is broadly analogous with the use of cluster munitions. In Vietnam, early variants of these air-to-surface rockets had a 10 per cent failure rate.[39] Nonetheless, no treaty specifically restricts their use.
- **40 mm automatic grenade launcher.** The 40 mm cartridge of an automatic grenade launcher is comparable to a cluster munition because it is an automatic fire capability with area effects. Leading manufacturer Rheinmetall claims a failure rate of less than 1 per cent for this armament, and its use is not specifically restricted under treaty law.[40]

The examples above indicate that munitions demonstrating failure rates ranging from 1 per cent to more than 30 per cent have not attracted international prohibitions on their use. Taking the most conservative approach, a 1 per cent failure rate would appear to offer a baseline for cluster munitions that could be justified by the Australian Government at an international level. Indeed, the Department of Defense of the United States, a non-signatory to the CCM, instituted a mandatory 1 per cent failure rate ceiling to be achieved for cluster munitions used after 2018.[41]

Notwithstanding that a basis exists to assert a 1 per cent failure rate ceiling for cluster munitions, there are evidently critics of such an approach. For example, Human Rights Watch has observed that '[e]ven with a 1 percent failure rate, a single, typical cluster rocket strike would leave about 40 landmine-like duds'.[42] This criticism is based on the view that the whole warhead, rather than the submunition, is the appropriate unit of measure for failure rate, and that any failure rate is relative to the number of submunitions. Such a standpoint, however, is inconsistent with accepted international norms with respect to the use of other conventional munitions. For example, an entire volley of 2.75 inch rockets is not considered to have failed if a single rocket fails to detonate – whereas, based on the position asserted by Human Rights Watch, a cluster munition fails if even one submunition fails to detonate.

To bridge the divide, this paper proposes a baseline for the permissible use of cluster munitions, founded on a utilitarian ethical judgement that is less arbitrary than current restrictions on size and number of submunitions imposed by the CCM. Namely, any weapon which is *more likely than not* to result in UXO should be regarded as unethical on the basis of it being indiscriminate. This standard would demand that the sum of the failure rates of *all* submunitions within a warhead must not exceed 50 per cent.

Applying this baseline to a hypothetical example, a cluster munition with 100 submunitions, and with a failure rate up to 0.5 per cent per submunition has no more than a 50 per cent probability of leaving just one submunition as UXO. Such a cluster munition would meet the proposed benchmark. Equally, a hypothetical cluster munition with 25 submunitions and a failure rate of up to 2 per cent per submunition would also meet the standard. By contrast, in the case of cluster munition rocket artillery with large payloads (such as M39 Army Tactical Missile Systems (ATACMS) and M30 rockets), hundreds of submunitions are delivered in one strike, meaning that the probability of UXO is very high – regardless of technological advances. Considering the M270 MLRS (HIMARS or GMLRS) is the most likely contender for the Land 8113 Long Range Fires project, to remain within the proscriptions of the CCM, this weapon system would still need to utilise only 227 mm or ATACMS unitary and M30A1 'alternate warheads' with tungsten balls instead of submunitions.[43] Placing such a limitation on the capability, however, significantly constrains its potential military utility against armoured targets. Regardless, when applying the proposed scalable 50 per cent UXO baseline to this example, such munitions should remain prohibited.

Applying a scalable failure rate for cluster munitions, combined with the existing criteria 4 and 5 of the CCM, would considerably enhance the CCM's potential to address the threat posed by UXO within the international community. Predicated on this reasoning, an international baseline of 1 per cent failure at the submunition unit of measure, and a scalable 50 per cent failure rate at the warhead unit of measure, provides a sound basis for Australia to negotiate an amendment to the CCM.

The Problem of Wide-Area Effects

Area effects are a characteristic feature of both indirect and direct fire weapon systems. While the issue of area effects is not expressly addressed by the CCM, the laws of armed conflict imposes a prohibition on weapons that breach the principles of discrimination and proportionality.[44] Critics of cluster munitions routinely contend that cluster munitions deliver area effects that are so uncontrolled and dispersed that they necessarily breach the prohibition against the use of weapons that are inherently indiscriminate. This part of the paper challenges this assertion.

The CCM imposes several restrictions related to the perceived 'uncontrolled' and 'dispersal' characteristics of cluster munitions. Specifically, at criterion 1, the number of explosive submunitions is limited to 9, weighing over 4 kilograms. While the basis for this precise specification is unstated, there is a clear implication that any munition that breaches these restrictions in numbers and minimum weight delivers submunitions in a payload that is necessarily indiscriminate or disproportionate. Similarly, criterion 3 requires that munitions are to be designed to detect and engage a single target. This criterion implies that unguided munitions are, by their nature, insufficiently discriminate or controlled.

However, the requirement for single-target precision is not imposed on any other munition, including munitions of a more destructive nature such as incendiary or high-payload aerial bombing.[45] The payload restrictions also come unstuck when compared to the area effects of the GBU-43/B MOAB or the 70,000 lb maximum theoretical payload of a B-52.[46] These restrictions in the CCM are highly inconsistent with the existing body of LOAC, which does not restrict payload or guidance mechanism, but instead restricts the method of employment and target selection.

A counterargument is that it is not the weight, number, wide-area dispersal or the unguided movement that is – individually – at issue. But there is more at issue. It is the combination of all these factors that results in unacceptably indiscriminate area effects, particularly in circumstances in which cluster munitions are the product of low-cost and simple production methods. Such production methods generally result in fewer fail-safe measures to improve discrimination.

A more effective way to contain this accumulation of risk factors is to replace criteria 1 to 3 of Article II of the CCM with tighter requirements around the effectiveness of self-destruction and self-deactivating features (as proposed above). This proposal addresses all concerns raised and their effects combined, in a measurable and direct manner. This would be a clear improvement on the more arbitrary and exceptional restrictions outlined in criteria 1 to 3 of Article II of the CCM. Indeed, such a measure may actually encourage non-ratifying states to accede to the CCM. This is because the wholesale restrictions currently imposed by the CCM on submunitions and payloads do not incentivise the adoption of improved fail-safe technology and deter many states from becoming parties to the CCM.[47]

Cannon Delivered Area Effects Munition Program

The preceding amendments recommended to the CCM appear to be difficult to achieve in light of current weapons technology. In this regard, an examination of technological developments in the United States is instructive. While not a signatory to the CCM, in 2008 the United States committed to only utilising cluster munitions with a failure rate of less than 1 per cent. In response, the US Army initiated the Cannon Delivered Area Effects Munition (C-DAEM) program to lead the development and trialling of new cluster munitions to meet this requirement.

Today, the C-DAEM program is considering two key munitions that deliver area effects, with the development and testing phase scheduled for completion by mid-2024.[48] The first is the proximity-initiated submunition round (PRAXIS) which disperses 5 submunitions of pre-formed tungsten fragmentation for highly lethal anti-personnel and light materiel effects.[49] PRAXIS is armed with an Extreme Reliability Tri-Mode Proximity Fuse combining a proximity fuse with 97 per cent reliability, an impact fuse with 98 per cent reliability and a time fuse with 98 per cent reliability.[50] Despite

its goal of '1 in a million UXO', PRAXIS will nonetheless contravene the CCM as each submunition is not designed to detect and engage a single target. The other munition under development is the DPICM-XL munition, containing 60 submunitions. The DPICM-XL will have similar effects to the legacy M483 DPICM munitions in defeating personnel and light materiel through to medium armour.[51] Despite having an extreme reliability fuse, this munition will also contravene the CCM because it breaches the CCM's nine submunition limit and the requirement for single-target engagement.[52]

In the event of a peer-on-peer conflict, Australia should reserve the right to utilise these highly lethal, dual-purpose and area-effects munitions. With advancing technology, the arbitrary and exceptional nature of Article II to the CCM becomes increasingly evident.

Risks of Withdrawal

The effort to seek amendment or to withdraw from Australia's treaty obligations under the CCM would be no small task for our elected representatives. So it is worth considering the potential risks and mitigations that could serve as a basis to pursue such a change.

The diplomatic risks of amendment and withdrawal for Australia are significant. China's recent criticism of the AUKUS submarine deal (despite having its own nuclear submarines) suggests that any Australian decision to withdraw from the CCM and to acquire advanced cluster munitions would prompt further such criticism.[53] While being a producer and exporter of cluster munitions used in Iraq, Israel, Lebanon and Sudan, China has not utilised such munitions itself.[54] Closer to home, Australia's immediate region has not seen majority support for the CCM, with only three of 10 ASEAN nations and 10 of 18 Pacific Islands Forum nations ratifying or signing it.[55] Even nations with significant UXO remnants in their territory, Vietnam and Cambodia, do not support the CCM.[56] Nevertheless, South Pacific nations – particularly those with a history of nuclear testing in their region – would likely view any Australian decision to withdraw from the CCM with concern. Equally, Indonesia would be expected to criticise any such decision to withdraw, despite its own reticence to proceed from signatory to ratification. Beyond the political implications of condemnation by neighbouring states and global powers, Australia would need to remain cognisant that any move to withdraw from the CCM could potentially encourage other states

to follow suit or to proceed further in their own acquisition of low-reliability, high-payload, legacy cluster munitions.

Several factors could mitigate the political and diplomatic consequences of Australia seeking to amend or withdraw from the CCM. Firstly, Australia could commit to adhering to the principle and intention, but not the letter, of the CCM. This commitment could be reinforced by more conservative restrictions than those of its principal ally, the US. Specifically, Australia could commit to withholding the use of rocket and aerially delivered cluster munitions until such munitions are technically able to meet the scalable failure rate outlined above. Secondly, Australia's commitment to a strict testing regime would assure the international community of Australia's adherence. Finally, any withdrawal from the CCM would need to be prefaced with a genuine commitment to amending the CCM in line with the recommendations made in this paper.

Conclusion

The case for cluster munitions is predicated on the three distinct characteristics of DPICM: area effectiveness, lethality and dual purpose. The public pleas made by a senior Ukrainian military official in *Small Wars Journal* for the US to provide DPICMs to Ukraine[57] highlighted the lethality and effectiveness of these weapons, as well as the stakes at play in its war with Russia.

Within the US-led alliance system, DPICM-XL and PRAXIS are likely to become the ethical, lethal, dual-purpose, area-effect 155 mm munitions of choice from 2024 onwards. The effectiveness and fail-safe technology of these munitions strengthens the case for the Australian Army to acquire them. While it is likely (in the event of a near-peer conventional war) that the United States would return to employing M30 and ATACMS cluster variants from its MLRS, it is not clear that technology would have sufficiently advanced for these MLRS cluster munitions to meet the scalable failure rate outlined above. Therefore, the Australian Army should seek to acquire unitary warheads for point targets and M30A1 warheads for area targets in its LAND 8113 Long Range Fires project.

Australia's deteriorating strategic circumstances and the increased prospect of Great Power competition in the Indo-Pacific may justify the use of highly lethal, dual-purpose area effects. As the Ukrainians have out of desperation,

the Australian Army should advocate for the use of cluster munitions if it is to remain competitive in response to emerging military challenges.

Army Commentary

James Saint's judiciously researched piece advocating for the revisitation of the Convention on Cluster Munitions comes at a critical point in Australian fires modernisation. The next decade will see the Australian Army procure and realise an unprecedented expansion of its tactical and operational fires capabilities. Moving beyond intimate support to ground forces, the Army will be enabled to execute shaping actions and counter-fires and strike high-value targets.

Critical to success in the future is not just the replacement of delivery systems or additional platforms; the family of munitions must be modernised and evolved. This paper recognises that progressive advancements in projectile technology now permit a great level of dependability and precision, while maintaining lethality and mitigating the problems of area effects and UXOs. Captain Saint has effectively highlighted that contemporary advancements challenge some of the technical and ethical factors underpinning the initial signing of the Convention on Cluster Munitions, providing a practical justification for a reassessment.

The weapon of artillery is the projectile, not the equipment that fires it. As the Army continues down the path of fires modernisation, understanding the tactical, technical and ethical constraints of our systems is critical. This will necessitate embracing new procedures and technical constraints and, as advocated by Captain Saint, revisiting legacy restrictions to ensure they survive contact in the future battlefield.

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Captain James Saint is an Artillery Officer currently completing a Masters of Strategy and Security with the University of New South Wales.

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Primus inter pares vel primos? The Development of the Military Staff in the Australian Army

Leo Purdy and Tony Purdy

> *As war has become more spacious and fighting more intricate, so victory has grown more and more dependent on a system where the leader is supported by a staff and an executive, trained to relieve him of the burden of detailed preparation and administration and to give effect to his plans by a thorough comprehension of his intentions.*[1]

Introduction

Military advisors, often grouped as a 'staff', have probably existed as long as armies have had commanders. The principal role of the staff is to aid the commander to control military action through the performance of planning, administrative and support functions. Across the Australian Army today, staff exist in the headquarters of battalions, regiments, brigades, divisions, commands and at the service level. However, the structure of these staffs and how they are employed differs widely. The primary reason for this is the unique development path of the staff system in Australia, influenced by its military heritage and shifting alliances. The effect of this continues to be felt today where conflicts exist between the current staff model and staff processes. To appreciate why this has occurred it is necessary to understand the history of the development of the military staff in broad terms and within Australia.

This paper examines the origins and nuances of the military staff system employed by Army. It aims to inform commanders and those serving on, or preparing to serve on, military staffs to enable them to understand why the staff system exists in the form that it does today and how it could be bettered for tomorrow. It examines the heritage of Australian staff approaches, which primarily draw from two different philosophies prevalent in Western militaries. First, it examines the British staff philosophy and its particular characteristics. Second, it explains how the Australian staff system developed over the course of the 20th century. Third, it examines the evolution of the Australian staff system in the early 21st century with the adoption of the Common Staff System, which originated in French staff philosophy. Fourth, it discusses a number of observations on current staff guidance and practice. It concludes by offering three recommendations for further analysis and discussion.

The British Army's Staff System

Staffs have existed in the British military since at least the 17th century.[2] In the Napoleonic era, British army staffs were divided into adjutant and quartermaster functions, with the highest-ranking staff officers of each function titled 'Adjutant General' and 'Quartermaster General'. The former dealt with personnel, disciplinary and administrative matters. The latter focused on quartering, provisioning and moving troops. In this period, staff often lacked formal military education and were frequently selected as a result of seniority or allegiance to the commander. Conspicuously absent from the British approach was a chief of staff to coordinate the effort of the two functions, particularly when the commander was engaged on the field of battle.[3]

The burden of planning battles, allocating resources and making decisions on the field of battle largely fell on the shoulders of the commander. These commanders would, when required, seek advice from subordinate arms commanders, e.g., the leaders of the separate cavalry, infantry and artillery arms. However, ultimately it was the commander who developed the plan and oversaw its execution on the field of battle by ordering the formations of these arms and coordinating when they charged, marched or fired. As the size of armies expanded in the 18th and 19th centuries, the span of command grew to encompass the coordination of multiple battles/actions

across one or more campaigns spread across vast distances. Likewise, the complexity of the means of warfare increased. Artillery could be accurately employed beyond the field of battle (e.g., beyond direct line of sight), rail transported armies hundreds of kilometres quickly and the telegraph enabled information to be conveyed rapidly. The thirst of new weapons also added to the burden of supplying and equipping an army. Consequently, managing the preparations for war and commanding and controlling its execution on multiple fields of battle became far greater challenges for a single commander.[4]

The impetus to improve command and control in the British Army was driven by its performance during the Crimean War of 1853–1856. Britain's involvement was chequered by intelligence, logistic and planning shortcomings which manifested in poor battle performance.[5] In its wake, the need to professionalise the officer corps prompted the creation in 1858 of a dedicated staff college to educate military officers and, under the subsequent Cardwell Reforms, the abolition of the purchase of officer commissions in 1871. The staff college was important as it enabled the development of a body of officers trained in the *general* arts and science of war – referred to today as operational planning, intelligence and execution. Graduates were awarded the post-nominal of 'passed-staff-college' or 'p.s.c' and earmarked for employment in staff roles. However, the number of graduates it produced was insufficient to populate staffs across the entire force, and the influence of the staff in the late 19th century was relatively limited.[6]

This was reflected in the performance of the late Victorian era British Army in the Second Anglo-Boer War of 1899–1902. Most of the headquarters in this war featured ad hoc staffs, which were afforded little opportunity to train together and consequently were unfamiliar with the commander they supported. This situation resulted in poor command and control in the field and high incidences of wastage.[7] In response, a series of investigative reports into the war were undertaken; the *Esher Committee Report* of 1904 is of most relevance to this analysis. *Inter alia* it recommended the creation of a trained high-level General Staff to command and control the Army. This was modelled, to a point, on the German General Staff, itself derived from the Prussian staff model. It is important to delineate that the term 'General Staff' pertained not only to a collective staff providing the highest headquarters of the army but also to the creation of a 'Generalist' staff branch within it. This branch became responsible for performing the

operational coordination, planning and intelligence functions to support the commander. The British General Staff was created in 1905 and the staff approach instituted in standing army, corps, division and brigade headquarters during the period of the Haldane Reforms over 1906–1912.[8]

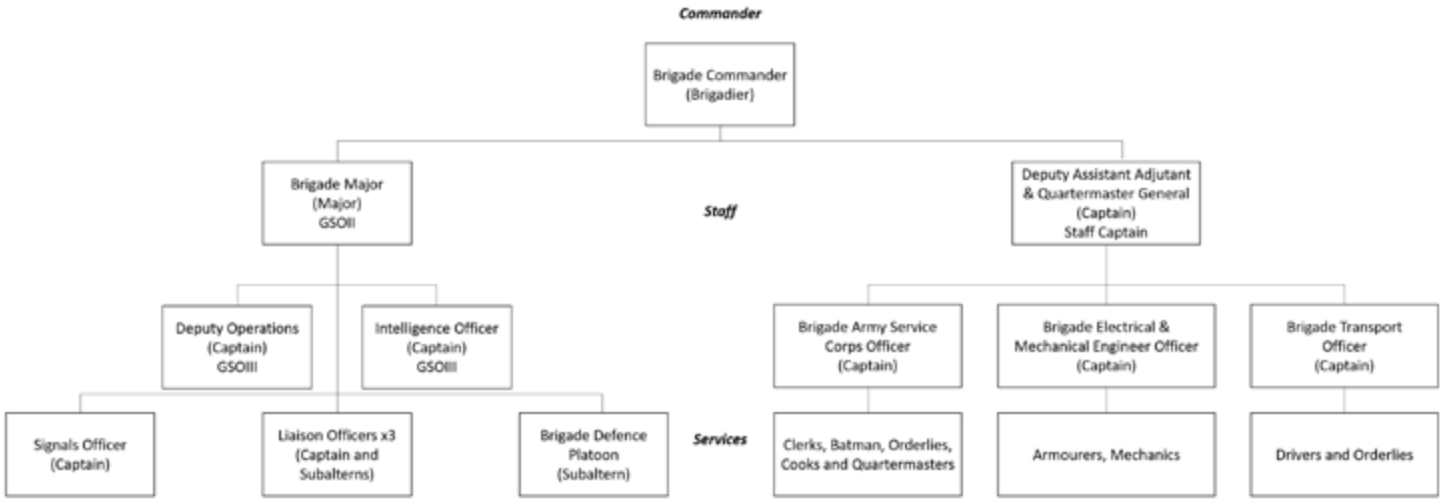
Importantly, this approach was captured doctrinally in *Field Service Regulations, Part II, Organisation and Administration*, released in 1909, and the *Staff Manual* in 1912. The former explained that the staff consisted of three branches:

a. the General or 'G' Branch, responsible for operations, intelligence and training
b. the Quartermaster-General or 'Q' Branch, responsible for supplies and equipment support
c. the Adjutant-General or 'A' Branch, responsible for administration, personnel and discipline.[9]

The G Branch staff officers within this system were termed 'General Staff Officers'. General Staff Officer Grade 1, or 'GSO1' lieutenant colonels were assigned as head of the G Branch in a division, or head of a section (e.g., operations, intelligence or training) in a higher headquarters such as a corps or army. Majors as GSO2s could be in charge of a brigade level G Branch, lead one of the sections in a division G Branch or serve as an assistant in a higher headquarters. GSO3 captains served in assistant roles. Officers of the A and Q branches were assigned different titles. Lieutenant colonels were appointed as Assistant Adjutant General (AAG) or Assistant Quartermaster General (AQMG), and were heads of A and Q branches in a division, or if these positions were combined the individual was titled Assistant Adjutant and Quartermaster General (AAQMG). At higher headquarters, they served as heads of an A or Q section (e.g., provost marshal, quartermaster or ordnance). Majors were titled Deputy Assistant Adjutant General (DAAG) or Deputy Assistant Quartermaster General (DAQMG) and were either heads of brigade branches or assistants in higher staffs. Captains were termed Staff Captain Adjutant (SCA) or Staff Captain Quartermaster (SCQ), serving as assistants in their branches.[10] Importantly, except in the highest commands this model did not provide for a chief of staff, with the coordination function falling to the senior officer in the G Branch.

At the brigade level the senior 'G' function officer, a GSO2, was termed the Brigade Major or 'BM'. However, given the paucity of staff at this level prior to the First World War (which consisted of the commander, a major and a staff captain), the BM was not only responsible for coordinating the entire headquarters but was also responsible for all operational and intelligence issues. Further, at this level the A and Q branches were amalgamated into one organisation that addressed supply, transport, movements, clothing, maintenance, awards, postings, promotions, medical, chaplains and military police matters. The combined 'A/Q' function was led by the staff captain, titled Deputy Assistant Adjutant and Quartermaster General (DAAQMG), or simply the 'DQ'.[11] The small staff was also supported by orderlies, clerks and military police.[12] Importantly, over the course of the two world wars as the military evolved and gained additional capabilities, additional functions and staff were also added. These included a GSO3 as deputy to the BM and an intelligence officer, as well as transport, service corps and electrical and mechanical engineering officers to support the DQ, as shown in Figure 1.[13]

Figure 1. A British brigade headquarters structure circa 1945[14]



*Subalterns include Lieutenants and Second Lieutenants.

At the unit level, infantry battalions, cavalry regiments and artillery brigades[15] were structured along similar lines. The unit's Commanding Officer (CO), a lieutenant colonel, was provided a major as Second-in-Command and two captains: the Adjutant and the Quartermaster.[16] In barracks, the Adjutant served as the CO's personal staff officer and was responsible for the 'A' functions of administration, organisation and discipline of the unit, particularly recalcitrant subalterns. In the field, as the senior captain the Adjutant also performed the 'G' role, receiving, developing and issuing the orders of the CO and, given that the battalion Second-in-Command was generally located in the echelon in the unit's rear area, controlling the conduct of the unit. The Quartermaster managed the unit's 'Q' functions such as supplying, moving and quartering the unit.[17] Akin to the brigade staff, over the course of the 20th century as the means to wage war grew in complexity at the unit level, additional staff were added to the battalion/regiment staff, such as: an intelligence officer, a battle adjutant who focused on unit operations, and a regimental technical adjutant responsible for the maintenance and technical worthiness of the unit's equipment.[18]

From this overview, three defining characteristics of the British system are evident. The first is the absence of a chief of staff in all but the highest of headquarters. The second, is the 'diarchic' division of the staff into two components, one primarily concerned with operational and intelligence functions and the other with administrative and supply matters. Third, the British system gave primacy to operational matters over supply and administrative issues. Given these characteristics, it is useful to highlight several strengths and weaknesses peculiar to the British Commonwealth model.

First, commanders at division and brigade levels had neither a deputy commander nor a dedicated chief of staff, resulting in a relatively flat bureaucracy. The latter role was performed by the 'G' Branch GSOI at division and the BM at brigade level. The strengths of this approach were the ease of access afforded to the two functional heads and the direct involvement of the commander in coordinating the work of their staff. Conversely, the absence of a chief of staff meant that there was no redundancy in the event of the commander being absent or incapacitated. At brigade level without an immediately available deputy to assume command, another leader, such as a unit commander who was often physically displaced from the headquarters, was required to do so. In certain cases, this resulted in BMs assuming command while replacement commanders were sought,[19] adding to their already substantial role.

Second, the British staff system's diarchic reliance on two principal staff officers (PSOs) could prove vulnerable in wartime. Brian Bond's examination of the British Army staff system noted that at the division level the two PSOs, the GSOI and DAAQMG, were 'absurdly overworked', a problem exacerbated by a dearth of trained staff officers.[20] Others noted that the staff of a divisional artillery commander, consisting of a BM and staff captain, was 'too small to exercise effective control' over the division's four artillery brigades.[21] Likewise, at the brigade level, the BM and DQ weathered a significant number and wide range of duties. In a BM's case, not only were they responsible for receiving, drafting and issuing orders, assigning reconnaissance tasks, interpreting intelligence, conducting planning and coordinating operations; they were also responsible for managing the 'G' Branch, the staff itself and siting and moving the headquarters.[22] While the performance of these multitudinous tasks was perhaps manageable with a well-trained, experienced and talented individual in the role; when trained staff were in short supply or lost as battle casualties, the reliance on such individuals could be a point of weakness. In his doctoral dissertation on infantry brigade command during the First World War, Roger Wood noted that the loss of experienced and efficient brigade majors was 'keenly felt' and impacted on the 'efficacy of a brigade'.[23] Given the DQ's vast remit of administrative and logistic responsibilities, and the importance of these to operations, the loss or incapacitation of these individuals likely resulted in similar adverse effects.

Furthermore, as the British Army rapidly expanded in response to the scale of the fighting in the First World War, this created an 'appalling shortage' of trained staff officers.[24] In response, many prospective staff received abbreviated training, such as attending expedient junior and senior staff courses. However, there were many who received little formal education.[25] The problem of inadequate staff numbers and training appeared again in the early fighting in the Second World War. Edward Smalley's examination of staff performance during the fighting in France in 1940 cites poor-quality staff work as a contributing factor in the British Army's substandard performance. He asserts that as 'the military situation deteriorated, the staff system and its orthodox military procedures was overwhelmed'.[26] Others note that as the war progressed and staff training was again shortened, the standard of the graduates deteriorated and staff work suffered.[27] These wartime experiences leave the impression that the British system at lower tactical levels, which employed very few staff, was particularly vulnerable to the loss of key staff and shortages in trained officers.

Third, the function and status of the 'G' staff resulted in a *primus inter pares* or 'first among equals' approach, particularly at lower levels. This approach is a theme found throughout the *British Field Service Regulations*, as exemplified by the 1939 iteration of *Field Service Regulations, Volume I, Organisation and Administration*, which states that the BM was not only responsible for the work of the other staff but could allocate it as they saw fit.[28] This relative autonomy was reinforced by the disparity in ranks between the BM and other staff officers, with the operations function 'out-ranking' the other functions. In practice, this situation risked the 'G' or operations function dominating the other branches and created the potential for operational matters to override all others to the detriment of the broader plan.

It is important to note that this system, with its inherent strengths and weaknesses and its idiosyncratic appointment titles, served the British Army throughout the majority of the 20th century, including both World Wars. Although its three defining characteristics are consistent throughout this period, the system should not be misconstrued as monolithic. The staff structure and staff processes adapted as new technologies and methods were incorporated into the British Army. Ultimately, the system was replaced in British service in the 1980s, and subsequently in Commonwealth armies such as Australia's, by the North Atlantic Treaty Organisation (NATO) or Continental Staff System. Before considering this staff system, an examination of the Australian staff approach during the 20th century is necessary to provide context.

The Australian Approach in the 20th Century – Adoption and Adaptation of the British Commonwealth Model

In 1901, the Federation of the former colonies triggered the creation of the Australian Commonwealth Military Forces (ACMF), the antecedent of the Australian Army. Given Australia's membership of the British Empire, the Australian military was closely aligned with the British Army at this time. This resulted in the adoption of British weapons, equipment and organisations, including staff structures and processes.[29] Consequently, the British or Commonwealth staff approach dominated Australian practice during the 20th century. Australian staff replicated British practice during peacetime as well as during the First and Second World Wars. While the initial command and control of the Australian military rested in the

hands of a General Officer Commanding, this was replaced in 1905 by a Military Board. The board was presided over by the Minister for Defence and eventually included a civil member, a financial representative and four military members. Of these military members, the first was responsible for organisation, operations and intelligence, the second personnel and administration, the third supplies and transportation and the fourth fixed defences, arms and ammunition. These military positions corresponded with the generalist, adjutant-general, quartermaster-general and master-general of the ordnance functions instituted in Britain at that time.[30] Separate to this was the position of Inspector General, who provided an independent assessment of the military readiness and effectiveness of the force. In 1909, the position of Chief of the General Staff (CGS) was created. The CGS performed the generalist function, commanded the other functions and conducted liaison with the Imperial General Staff on defence matters. While command of forces during time of war resulted in the creation of a Commander-in-Chief either separate or superior to the general staff, this high-level staff system remained largely intact until a series of reforms that occurred during the 1970s.[31]

For the ACMF, the Australian Constitution and the Defence Act affected both its composition and organisation as well as that of the military staff. For almost all of the first 50 years of its existence, the Australian military was predominantly a militia force whose part-time divisions, brigades and units were governed, trained and sustained by a small permanent element. With the exception of certain artillery and engineer capabilities, it did not contain permanent combat units. This differed functionally from the British Army, which contained both full-time/permanent and part-time/militia combat units and formations. In Australia this model was enshrined in the *Defence Act 1903 (Cth)*, which directed that the part-time Citizen Forces provide the basis of the infantry, light horse and field artillery combat arms.[32] The full-time Permanent Forces existed to provide administrative and training support via cadres of officers, warrant officers and senior non-commissioned officers posted to each unit and formation. Because full-time personnel could not legally be part of the combat arms, this resulted in permanent 'generalist' personnel being posted to the Administrative and Instructional Staff, who along with members of the service, medical, ordnance, artillery and engineer corps provided headquarters staff and instructors.[33] Figure 2 depicts some of the key senior staff officers of Headquarters Australian Corps during the First World War.

Figure 2. Senior staff officers of the Australian Corps at Bertangles Chateau, 1918. Lieutenant General Sir John Monash KCMG KCB VD, General Officer Commanding, Australian Corps (seated), with (back row, left to right) Brigadier General CH Foott, Chief Engineer; Brigadier General RA Carruthers, Deputy Adjutant and Quartermaster General; Brigadier General TA Blamey, Brigadier General, General Staff; Brigadier General LD Fraser, Brigadier General, Heavy Artillery; and Brigadier General WA Coxen, Brigadier General, Royal Artillery. (Source: Australian War Memorial E02750)

Changes to this approach were driven by the experience gained from the operation and administration of the Australian Imperial Force during the First World War. In 1921, as part of a major reorganisation of the military, a structure mirroring the wartime force was adopted. This incorporated five infantry and two cavalry divisions. To administer this large organisation the Australian Staff Corps and Australian Instructional Corps were created, the latter consisting of permanent quartermasters, warrant officers and non-commissioned officers (NCOs). The Staff Corps initially comprised 'combat arms' officers drawn from the Permanent Military Forces Administrative and Instructional Staff, Royal Australian Field Artillery, Royal Australian Garrison Artillery and Royal Australian Engineers. In general, the permanent Staff Corps officers filled staff appointments at

unit and higher formations while the part-time militia officers filled command appointments, although exceptions to this occurred.[34] However, following the Second World War, changes to the *Defence Act* led to the creation of a permanent Australian Regular Army and its ascendancy over the militia as the preferred provider of military power. Importantly this enabled the creation of permanent infantry and armour units. These, in conjunction with specialised corps training schools, now generated and administered combat arms officers, warrants and NCOs. As junior permanent officers were also able to graduate into these combat arms corps, the need for a specialised staff corps for combat officers became moot. Consequently, the Australian Staff Corps was eventually removed from Army's order of battle in 1983.[35]

The development of an Australian military staff was followed by the development of an Australian staff college. Post-Federation, the growing requirement for skilled administrators and trainers for the citizen force resulted in the establishment of the Royal Military College Duntroon in 1911 to furnish junior officers to it. However, in the absence of a higher-level staff college, small numbers of Australian officers attended the British staff college at Camberley or the British Indian Army's at Quetta. This situation remained until 1938 when Army formed a Command and Staff School in Sydney to develop mid-senior officers versed in higher tactics, military strategy and administration. This school was subsequently moved to Fort Queenscliff in Victoria and renamed the Australian Staff College in 1946. It was again renamed as the Command and Staff College in 1982, and was eventually absorbed into a tri-service Australian Command and Staff College in 2000. Most recently, in 2019 this college and the Centre for Defence and Strategic Studies (which trains senior-level officers) were amalgamated into the Australian War College, with the Australian Command and Staff Course the mechanism to train mid-level Army staff officers.[36]

Returning to the 1970s, the *Hassett Committee* was the first of several reviews that led to significant reforms in the staff system at higher levels. This review rationalised the functions of the General Staff and elevated the CGS into an executive function above the others to focus on command of the Army and serve as principal advisor to the Minister for Defence. This led to the creation of a Chief of Operations to assume the operations, training and planning functions of the CGS's office. In line with this the Adjutant-General, Quartermaster-General and Master-General of the Ordnance

became the Chiefs of Personnel, Logistics and Materiel. Around this time the distinction between G, A and Q staff titles was removed, with a generic appointment of 'Staff Officer' with three grades entering into use – SO1 (Lieutenant Colonel), SO2 (Major) and SO3 (Captain).[37] The second major change was the abolition of the Military Board under the *Tange Review.* This ultimately unified the services as the Australian Defence Force (ADF), to be commanded by a Chief of Defence Force (CDF) and controlled by the Chief of Defence Force Staff (CDFS).[38] Under this approach, the CGS was subordinated to the CDF and access to the Minister for Defence became more limited for the other former members of the board. In 1997, the CGS was renamed Chief of Army (CA) in recognition of the role of both command and control during peace and war.[39]

Amid these higher level changes, at the tactical level brigade and unit staff approaches continued to reflect British staff philosophies discussed previously. These approaches were codified in various staff duties guides, precis and aide-mémoires as well as in Army doctrine issued over the 20th century such as the *Pentropic Division* (1960), *Division in Battle* (1971) and *Manual of Land Warfare* (1977–1995) doctrine series.[40] Analysis of the final doctrinal expression of the British-derived Australian staff approach issued in the 1990s illustrates the influence of British thinking. The *Manual of Land Warfare Part One, Volume 5, Pamphlet No 1, Staff Duties in the Field* (1995), explained that the staff included:

a. a Coordination element to carry out the detailed coordination work of the headquarters and undertake the necessary action to carry out the commander's direction, generally consisting of a chief of staff and a coordination section at division level;
b. an Operations Branch responsible for operations, training, plans, intelligence, air support and communications;
c. a Personnel Branch responsible for personnel management issues such as reinforcements, postings and promotions, morale, discipline, welfare, honours and awards; and supervision of medical, dental, psychology, military police, prisoners of war, refugees, pay finance, chaplains, burials, graves, legal, canteens, amenities and philanthropic organisations; and
d. a Logistics Branch responsible for support engineering, movement, transport, postal, materiel management, supply stockholding, maintenance, recovery and other services.[41]

The *Manual of Land Warfare* explained that the relationship between the commander and the chief of staff was extremely close. In the absence of the commander, the chief of staff was to be prepared to act in the commander's name, anticipating their full support. The chief of staff worked closely with the senior staff officers to ensure that operational and administrative plans were properly coordinated and that the administrative staff was kept constantly in touch with operational changes. However, it noted that at the brigade level, as no chief of staff was provided for, the BM was assigned the coordination function. Furthermore, it advised that the Operations Branch was the senior branch in the headquarters and thus determined the priorities and the acceptability of the supporting plans of other branches.[42] Notably, and as in British practice, the Personnel and Logistics branches were often combined into one, led by a Deputy Assistant Adjutant and Quartermaster General or DQ.[43] Given the retention of terms such as 'DQ', the absence of a dedicated chief of staff and the diarchic division, this doctrinal guidance demonstrates the enduring influence of British thinking on the Australian staff approach. However, the desire for broader interoperability in the late 1990s, and the growing complexities of staff functions, led to the evolution of the ADF's, and Army's, staff system.

The Australian Approach in the 21st Century – the Common Staff System

In 1997, the ADF adopted at the operational level what it termed a Common Joint Staff System, which emulated the NATO Staff System. The primary reasons given for this were the ability to standardise staff organisations across the breadth and depth of the services, and; improve interoperability between America, Britain, Canada and Australia, as well as NATO partners that employed this system.[44] Before examining the application of the staff system in the 21st century, it is useful to understand its heritage.

The system's origins lay in the French staff model of the late 18th century. This was based on a 'bureau' approach in which the staff were divided into multiple departments or functions. Originally, this comprised four bureaux: the first handled administration; the second addressed technical matters such as armaments, engineers and hospitals; the third dealt with operational planning, reconnaissance and communications; and the fourth managed the staff itself. Importantly, these bureaux were coordinated by

a chief of staff on behalf of the commander. The efficiency of Napoleon Bonaparte's Grande Armée in the early 19th century is often credited by scholars to this system. The 1806 Battle of Jena-Auerstedt is a key example of the success of the French approach, which in turn triggered a renewal of the Prussian staff model, that proved decisive during the Franco-Prussian War of 1870.[45] During the First World War, the functions of the bureaux evolved to personnel, intelligence, operations/plans and logistics. Importantly, the French system was adopted by the American Expeditionary Force during the war and subsequently accepted by the United States Armed Forces.[46] While additional functions were added over the 20th century, the primary characteristic of a chief of staff coordinating multiple staff functions has prevailed.

In late 1997, Army implemented the Common Staff System at the tactical level to complement the introduction of the Common Joint Staff System. *Training Information Bulletin No 84* (TIB84) introduced the Common Staff System and its benefits, which it explained as:

a. common functional staff structures at all levels of command
b. clear divisions of staff responsibilities along functional lines
c. simplified correspondence
d. easier recognition of staff functions by allies and other military contacts
e. a sense of common purpose between staffs at all levels of command.[47]

TIB84 specified that this system was to be adopted at all headquarters down to battalion level to provide a common and structured approach to identifying staff functions and appointments. This system employed letters to identify the type of headquarters, as outlined below:

C—Combined Staff (multi-national) headquarters

J—Joint Staff (tri-service) headquarters

N—Naval component or headquarters

A—Air component or headquarters

G—Army component or headquarters of division or higher

S—Army headquarters brigade or below

SOJ—Special Operations component of a headquarters.[48]

Numbers added to these letters indicated the function of the division, branch, cell or individual:

0—Command Group and Specialist Staff. This included the executive staff (commander, deputy and chief of staff) as well as specialist staff.

1—Personnel. Personnel staff managed personnel and personnel policy, conducted administration and dealt with prisoners of war.

2—Intelligence. Intelligence staff managed the commander's intelligence requirements including the location, activities and capabilities of the enemy.

3—Operations. Operations staff assisted the commander by organising, training for and executing operations.

4—Logistics. Logistics staff coordinated logistic advice, and developed and monitored logistics plans including administrative movements.

5—Plans and policy. Plans staff focused on developing options to achieve the commander's mission and refining these into plans for future operations/contingencies.

6—Communications and Information Systems. These coordinated communications and information systems requirements including network and information architecture.

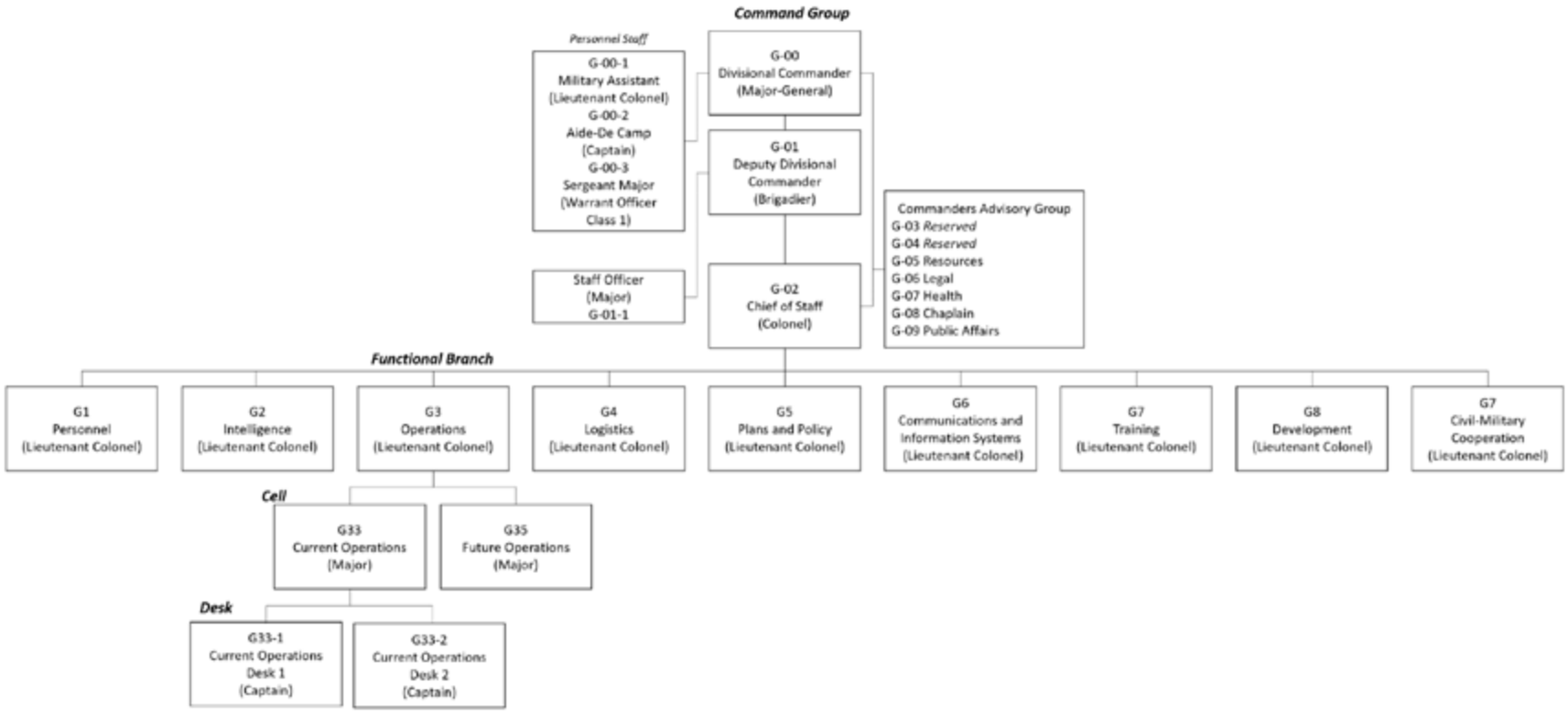
7—Doctrine and Training. Training staff identified standards, procedures, validation and training approaches to meet readiness requirements.

8—Force Structure and Development. Development staff were responsible for force structure, mobilisation and capability/equipment proposals and changes.

9—Civil Military Cooperation. This function was responsible for providing advice and liaison to enable planning and preparation with other government and non-government agencies.[49]

A generic divisional structure is shown in Figure 3 below.

Figure 3. An exemplar contemporary Australian Division Headquarters structure based on the Common Staff System[50]



The Common Joint Staff System introduced several important differences to the previous approach. First, within the '0' function the commander was assisted by a deputy commander, assistant commanders and a chief of staff. The deputy and assistants provided for continuity of command in the absence of the commander, and control of specific areas or functions when needed. The chief of staff supervised the staff and ensured timely and efficient inter-staff coordination in order to provide the commander with coordinated staff recommendations. They reviewed staff actions, resolved tasking conflicts and assigned staff duties. In turn, they passed pertinent information and insight from the commander to the staff and from the staff to the commander. Critically, this freed the commander from routine detail, enabling greater freedom to command. In the event that no deputy commander was appointed, the chief of staff assumed this role.[51] A clear advantage of this approach was the redundancy it provided in terms of command. A deputy or at least a dedicated chief of staff was available in the event of the commander being absent or incapacitated to assume command.

Second, the previous functions of the Operations, Personnel and Logistics branches were divided into the nine staff functions. This had the benefit of providing dedicated *expert* staff to each function – personnel, intelligence, operations, logistics, planning, training, etc. – rather than a number of functions being combined under a branch or an individual. Conversely, the creation of more functions meant more voices competing for access to the commander. Consequently, with the number of principal and additional specialist staff, the chief of staff function became even more critical to coordinate, prioritise and direct the staff's effort and provide the commander with clear, specific and objective staff recommendations.

Third, Army articulated that, with the introduction of the Common Staff System, all branch heads had *equal* access to the commander – there was no first among equals.[52] This represented a fundamental difference in philosophy and application between the Prussian and British approaches and the French and American methods. In theory at least, this meant that other PSOs representing functions such as intelligence, logistics, planning, etc. had equal contact with the commander and would not require the approval of one of their peer PSOs (e.g., the operations officer) to do so. As others have identified, by providing intelligence, logistics and administrative officers with co-equal status to the operations officer, this permitted the conduct of analysis and production of outputs objectively,

rather than these functions being dominated by the prerogative of the operations function.[53] In reality, the chief of staff in their coordination function did control access to the commander to a degree, with the attendant risk of favouring one function over another.

In conjunction with the introduction of the Common Staff System, Army also introduced the Military Appreciation Process (MAP) outlined in TIB74. The MAP, which nested in the Joint MAP, was derived from the US Tactical Decision Making Process and incorporated the Individual Appreciation previously in use as the Individual Estimate, later termed the Individual MAP.[54] The MAP provided the method for the staff to conduct analysis and to codify feedback to the commander on both the art and the science of war. Importantly, the MAP functioned hand in glove with the Common Staff System. It was command led, with the commander providing guidance and direction; and staff driven, with the functions analysing the situation and providing recommendations within their field of expertise. Notably, each staff function and individual PSO was assigned discrete roles, tasks, briefs and outputs to deliver as part of the MAP. Critical among these was that of the chief of staff, as with increased staff output there was a commensurate increase in the need for coordination. The chief of staff managed, coordinated, synchronised, quality controlled and applied discipline to the staff MAP effort.[55] In this model, the chief of staff was separated from the other staff officers by function and rank. Given this authority, within the staff they are *primus*, not *primus inter pares*.

Observations on Current Doctrinal Guidance

While the adoption of the Common Staff System occurred almost 25 years ago, it is evident that the British approach remains influential. This is particularly so at the brigade and below level, where terminology, roles and application blend both Common Staff System and British methods. By surveying relevant doctrine from the early 2000s onwards, a number of observations on terminology, role and application can be made. First, terminology in doctrine is important. This is particularly so at the brigade level, where titles of key individuals signify their role and status in the staff. Conflict between titles and staff functions are shown in the the land warfare series of doctrine publications which addressed the Common Staff System over the early 21st Century. *Land Warfare Procedure – General*

(LWP-G) 5-1-1 Operational Staff Guide Part 1 – Planning Procedures, 2004, which superseded TIB84, in deference to the vestiges of the previous system acknowledged that 'units and formations may retain traditional titles such as adjutant, operations officer and Colonel Plans for everyday communications'; however it directed that the 'Common Staff System took precedence where doubt existed'.[56] Likewise *Land Warfare Doctrine (LWD) 5-1-1 Staff Officers' Guide, 2007*, which succeeded it, briefly noted that the officers appointed as the S1/S4 and the S3 are sometimes referred to as 'DQ' or 'BM' but made no other mention.[57] In the most recent iteration, *LWP-G 0-5-1 Staff Officers Guide, 2017*, the titles of Deputy Assistant Adjutant Quartermaster General and Brigade Major reappear.[58] Therefore, are these simply semantic differences, with the titles of BM and DQ equivalent to the roles of the S3 and S4, or does this demonstrate conflict between the roles accorded by different schools of thought? Deeper analysis of these doctrinal roles is informative.

Second, a survey of the publications listed above demonstrates little change in roles from 1997 through to 2017. This indicates doctrinal continuity of thought on how a staff is structured and the roles and functions of the branches within it. Each publication articulates the '0' executive and '1–9' functional roles and responsibilities in accord with the NATO staff approach. The role and function of the chief of staff is explained in detail and the necessity of this role is abundantly clear. Likewise, the role and function of the principal staff is definitive. Notably, it defines the role of the S3 as a branch head focusing on executing operations/exercises and organisation. The S3 is responsible neither for the planning function nor for setting the priorities of other branches or the acceptability of their supporting plans – they are not a pseudo chief of staff. Therefore, the doctrinal roles and functions of the S3, the S5 and the chief of staff are separate, as are those of the S1 and S4.

However, analysis of the most recent doctrinal guidance suggests that conflict exists between the application of the Common Staff System, the MAP and relics of the previous British staff system. In terms of the application of the Common Staff System at brigade and below levels, the 2017 *Staff Officers Guide* offers contradictory guidance. In Section 1-4, it explains the application of the staff functions over 13 pages, in prose very similar to the 2004 and 2007 iterations. However, it then states:

> *Many HQ, particularly at brigade level and below, amalgamate staff branches into groups led by a principal staff officer (PSO). These groups are as follows:*
>
> *a. Commander's Advisory Group. As discussed in paragraph 1.47 and paragraph 1.48, the Commander's Advisory Group provides advice to the commander.*
>
> *b. Personnel/Logistics Group. This group is responsible for all G/S/SOJ 1 and G/S/SOJ 4 functions and at the brigade level is managed by the Deputy Assistant Adjutant Quartermaster General.*
>
> *c. Intelligence Group. This group is responsible for all G/S/SOJ 2 functions and at the brigade level is managed by the S2.*
>
> *d. Operations Group. This group is responsible for all G/S/SOJ 3, G/S/SOJ 5, G/S/SOJ 7 and G/S/SOJ 8 functions, and at the brigade level is managed by the brigade major.*[59]

This approach may reflect the realities of the available staff at brigade and unit levels (e.g., gaps in staff positions), resulting in the necessity to combine operations/plans/training/development and personnel/logistics functions. However, it contradicts the Common Staff System's aim to provide equal representation for all the functions. If the functions are, in effect, filtered by group heads, then the subject matter expert advice of each function potentially falls prey to subjectivity and ignorance.

Third, this approach risks the dominance of the operations group over all others, in turn jeopardising the objectivity of the staff as a whole. The 2017 *Concept for Employment for Army's Combat Brigade* evinces this. While not doctrine, this concept states that the BM is responsible for operations, plans, training, development and resource management, as well as orchestrating HQ functions including the commander's advisory group and delivery of battlespace effects. Furthermore, it advises that the DQ and the Intelligence Officer are responsible for 'supporting the BM'.[60] This approach negates the co-equal status of the staff branches and suggests a return to the first among equals thinking which adoption of the Common Staff System sought to eliminate. This guidance also clashes with the MAP.

The latest iteration of the MAP, *Land Warfare Doctrine 5-1-4 The Military Appreciation Process, 2015* defines the need and role of the chief of staff

and assigns tasks to each staff function/PSO. It makes no mention of BMs or DQs; nor does it prioritise one function above the others.61 Further, the role articulated in the concept for the BM/S3 of 'orchestrating functions' appears to contradict the role of the chief of staff in the MAP, who is allocated this task. Likewise, if the BM/S3 engages with the commander directly, this also risks counteracting the coordination function of the chief of staff detailed in the MAP. In essence the MAP was, and is, a process designed to complement the Common Staff System. However, there are points of difference between the staff roles articulated in the MAP and those in the guidance to staff, doctrinal or otherwise. Therefore, when terminology, roles and application differ between aspects of the Army's doctrinal guidance to its staff, this creates conflict in practice.

Observations on Current Staff Practices

In practice, four issues stem from the conflict between legacy thinking and the Common Staff System/MAP. First, when terminology, roles and functions diverge in practice from the Common Staff System/NATO approach, this can reduce interoperability. This is borne out by the example of Headquarters 1st Brigade (HQ 1 BDE). Given its location at Robertson Barracks, HQ 1 BDE acts as the key interlocutor with the annual Unites States Marine Rotation Force – Darwin (MRF-D). These rotations require HQ 1 BDE to engage with their MRF-D counterparts on a daily basis to conduct planning, liaison and operational coordination in order to execute common outcomes, such as Exercise Koolendong.[62] An observation made by HQ 1 BDE is the initial confusion MRF-D staff experience when presented with the terms BM and DQ. As the MRF-D employ the NATO staff system, these terms hold little meaning. This situation has resulted in a general misunderstanding of what these staff positions are responsible for – and their roles in planning – as they are not part of the NATO lexicon and there is conflicting articulation in Australian doctrine. In the authors' experience, this creates unnecessary friction, impacts productivity due to time lost in aligning functionality between staffs and has led to rank mismatch during planning and command post operations. While no single issue has proved insurmountable, when combined they hinder interoperability and ultimately contradict the reason for adopting the Common Staff System. In contrast, titles such as S3 and S4 do have meaning. These roles, tasks and functions are codified in easily accessible shared doctrine, and are widely understood. Therefore,

in the already difficult environment of coalition operations, typified by cultural, linguistic and behavioural differences, the discipline to adhere to common doctrine and terminology seems a simple concession towards enhanced interoperability.

Second, the conflation of the role of the S3 with that formerly mandated for a BM creates a burden both unrealistic and unsustainable. While it may have been manageable 100 years ago for a select individual at a brigade or unit to coordinate the employment of a force composed predominantly of a single arm, such as infantry or cavalry, it is questionable whether this remains the case in combined-arms formations today. It is unrealistic to expect that one individual has the knowledge or even the capacity to simultaneously coordinate staff functions across a headquarters; synchronise the multitude of battlespace effects in support of troops in contact; supervise command post operations; plan future operations; receive, develop and issue orders; and develop training plans, given the various fields of expertise that this requires. In reality, when actually engaged in operations, the operations staff are focused on fighting the 'current fight'. Equally, the collective knowledge of the myriad systems that operate in the battlespace is accessed by drawing upon subject matter expertise in the separate staff functions and via specialist advisors – such as chemical, biological, radiological and nuclear threats, cyber and electromagnetic activities, ground-based air defence, surveillance and target acquisition, weapons intelligence and air liaison elements. Furthermore, while the burden this creates might appear bearable on a two-week exercise, its sustainability is highly questionable on high-tempo deployments spanning many months without the risk of a marked decrease in the quality of staff work, or 'burnout' of staff. In contrast, a staff with a chief of staff and a full complement of PSOs is far better placed to meet these challenges and endure.

Third, as staff numbers increase in a headquarters, so does their output and the effort required to coordinate their activities. As noted by a British Army report assessing command and control in the 2003 Iraq War, without the imposed discipline to strictly limit the size of the staff at a given level to what is essential to its role and purpose, unchecked staff growth risks cancelling out any benefit afforded by increased staff numbers.[63] Coordination requires effort by the chief of staff and principals, and imposes costs on the time available to plan and execute a mission. In response, to manage a greater

number of functions, specialist advisors and processes, it can be tempting for staffs to *bureaucratise* by creating voluminous standard operating procedures (SOPs), drills and protocols which grow in number and complexity with the size of the staff. These can conspire to reduce tempo and create inertia in a headquarters, with planning slowed by convoluted and potentially unnecessary consultative staffing and clearance hurdles. A by-product of over-staffing is the production of orders of immense length which arrive too late for subordinate elements to ingest and execute them.[64] Similarly, unchecked growth can result in needless vertical duplication of staff functions between superior and subordinate staffs, risking unnecessary delays in handling of information, its misinterpretation, and wasted effort. Therefore, while functional representation, staff consultation and coordination are essential, discipline in staff numbers and processes is necessary to avoid the bureaucratic pitfalls of the NATO system.

Fourth, and perhaps most importantly, the dominance of one function over the others creates the potential for key inputs to be muted or dismissed in planning. As James Hittle wrote in his seminal *The Military Staff: Its History and Development*, 'objectivity has all too frequently been disastrously absent from staffs in which all functions, particularly intelligence and logistics, have been subordinated and minimized with respect to the operational desires'.[65] Without objectivity in staff processes, the potential for unsupportable and therefore unfeasible plans increases when support requirements are poorly understood or relegated to a 'back office' function not connected to warfighting. Thus, it is critical that all staff functions are provided appropriate representation during planning to create feasible solutions.[66]

In summary, the alignment of terminology, roles and function underpins not only objectivity but also the interoperability and durability of a staff. Likewise, for a staff to function effectively across its functions in sustained, high-tempo operations, it is necessary to provide it with adequate, competent and effective staff officers. In contrast, discipline must be applied to staff numbers to ensure staff at a given headquarters level are those necessary to perform that organisation's mission. Given planned changes to Army's force structure, opportunities exist to align doctrine and practice to improve the application of the staff system.

Enhancing the Staff System in the 2020s

The changes commenced under Plan Beersheba a decade ago provided Army the opportunity to align structures and processes through common combat brigade and unit headquarters organisations. This plan theoretically provided Army the great benefit of a growing pool of staff with relatively standard skills and experience. However, anecdotal evidence suggests that this is not the case, with headquarters staff levels fluctuating over the force-generation cycle and different approaches applied between formations and units. In practice, staffs are a product of the realities of the posting cycle, and the individuals posted to them adapt to this – you fight with what you have. However, when staff cannot apply the MAP or abbreviate it as a matter of practice due to gaps in key roles, misalignment of functions or a lack of understanding of the process, then the ability to generate experienced and capable staff is impacted. As the service once again changes given the recent guidance of the Defence Strategic Review and under the Army Force Structure Implementation Plan,[67] this situation may present opportunities to address the previous issues identified and enhance the staff system.

Figure 4. Staff from the Australian Army's 1st Brigade and United States Marines of the Marine Rotational Force – Darwin prepare for Exercise Koolendong 2021 at Robertson Barracks. (Image courtesy of the Defence Image Gallery)

A first step in improving the generation of skilled and experienced staff is to ensure that the doctrine which underpins their training and education is aligned, accurate and reflective of higher direction. This is a relatively simple process to ensure that the doctrine covering the MAP and staff guidance, as well as headquarters SOPs, reflects a single, unified approach. A top-down review of said documents, terminology and processes, refined by bottom-up feedback on the issues and challenges faced under the current system, such as deficiencies in staff numbers and training, would help to rapidly identify and address causal factors and achieve alignment between doctrine and practice.

Second, staff training should be optimised in design and resourcing to train individuals to employ said doctrine. In particular, courses, exercises and pre-deployment training should align with doctrinal roles and functions. This is necessary to instil the philosophy outlined in doctrine into those who practise it. Equally, realistic planning periods during training are necessary so that trainees/staff not only generate products and briefs but also have time to conduct critical analysis, develop estimates, plan, perform staff checks and liaise.

Third, the priority accorded to posting individuals to formation staffs versus staff billets in higher headquarters may warrant re-evaluation. There is a definitive need for a 'Great General Staff' at Army Headquarters to administer the Army on a daily basis and manage the immense effort to modernise it for future conflict.68 It is therefore important that Army inject human resources into its strategic headquarters to secure investment in its future. However, Army Headquarters structure and practice derives from a *portfolio, program and project* approach which uses management processes focused on the delivery of outcomes to achieve strategic objectives, not the Common Staff System or MAP.[69] It is perhaps paradoxical to immediately post many staff college graduates to such an organisation rather than initially investing more 'p.s.c' individuals as PSOs into formation headquarters. It is in these headquarters where they, and Army, can utilise their staff skills and joint networks acquired at staff college, and gain experience planning and executing formation-level operations in the 'field army'.

By altering the priority for *some* staff postings, formations could reap the benefits of increased staff effort, expertise and interoperability. HQ 1 BDE's early experience in 2023 offers some insight into this. In a switch from the aforementioned *primus inter pares* approach, a 'p.s.c' major was posted into the S5 role, resulting in the separation between 'Operations' and 'Plans', both functionally and temporally. As the PSO responsible for the 'Plans' function, the S5 leads planning, including development of all major field exercises and brigade activities. They do so in conjunction with the other PSOs, and while the outputs link to 'Operations', they are not subordinate to the S3. The S3 contributes to the 'manoeuvre' aspect of the plan and subsequently executing it as an operational order. This enables the S3 to focus on controlling and coordinating the 'current fight', concurrent with the S5 focusing on the 'future fight', with inputs to both from the other PSOs when required.

As the temporal horizon of staff activity shifts from future to current, a critical aspect has been the handover of the staff plan from the S5 to the S3 to operationalise as orders for execution, coordinated via the chief of staff and under the direction, approval and authority of the commander. This step change in approach from 2022 is neither revolutionary nor new; it is simply the application of the Common Staff System and the MAP. However, the addition and reshuffling of personnel to align with the roles and responsibilities in the Common Staff System has enabled the staff to better apply the MAP. This has already resulted in improvements to planning processes and outputs and provided opportunities for staff training. Importantly, it provides better overall support to the commander.

The approach described here may result in a smaller number of new staff college graduates posting directly to Army Headquarters, or a redistribution of 'p.s.c' staff across commands to populate deputy commanders, chiefs of staffs, and 'S' level staff at brigades. However, it would generate staff officers with more experience in the practical application of the MAP in a joint operational environment, who are arguably better developed for subsequent postings to higher headquarters.

Conclusion

This paper has provided a short history of the staff system employed by Army. It has illustrated that Australian staff methods in the 20th century were largely derivative of the British staff system. This system was typified by three characteristics: the absence of chiefs of staff at all but the highest headquarters levels, the diarchic division of the staff into 'G' and 'A/Q' functions, and the primacy of operations over personnel and logistics functions. There were strengths and weaknesses inherent to this *primus inter pares* approach. Its chief strengths were a simple and relatively flat bureaucracy and direct access to the commander by the principal staff. However, it also carried inherent weaknesses such as limited redundancy, concurrency and the potential for the operations function to dominate other considerations.

By the end of the 20th century, accordant with the shift of Australian defence policy towards the United States, Army adopted the Common Staff System, whose roots lay in French staff approaches. Under this system the chief of staff was *primus* and its bureau approach was typified by multiple staff functions each with co-equal status. This co-equal status also offers strengths and weakness. Its primary strength is that it can furnish commanders with specialist staff advice distilled across a wide range of functions and capabilities via a system that is compatible in joint and combined environments. However, increases in staff outputs also increase the need for coordination and strict staff discipline to avoid unnecessary and unproductive bureaucracy.

Subsequent analysis of contemporary staff application indicates that the previous British approach remains influential. British terminology continues in use and is a potential cause of conflict as former titles, such as BM and DQ, clash with the roles and functions of the Common Staff System and application of the MAP. Equally, the absence of the chief of staff and other PSOs in headquarters presents a significant challenge to executing a process reliant on the inputs of these individuals. In response, three recommendations were tendered which may improve the generation of skilled and experienced staffs: aligning doctrine and practice, affording more opportunity to train staff, and resourcing headquarters with adequate p.s.c staff to fill key positions. There are advantages and disadvantages to these recommendations, and mechanisms exist in Army to evaluate their merit in much greater detail than

is available here, and, should it deem them necessary and worthwhile, to enact them. Ultimately, the role of the staff in the 21st century has changed little. The staff can aid in reducing confusion and chaos in already complex operational environments by applying discipline to both the form and the function of planning and executing military action. To perform this role, those who work within the staff system require clear guidance, sufficient resources and the discipline to employ both effectively.

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Book Review

Cyber Warfare Ethics

Edited by Michael Skerker and David Whetham (Havant: Howgate, 2021, ISBN 9781912440269, xvi+220 pp)

Reviewed by Darren Cronshaw

Today's Defence members are more likely to engage in the demands and dilemmas of 'war in the grey zone'. The cyber domain is challenging traditional notions concerning the character of war. The cyber domain is also extending into sub-threshold contested spaces with cyber-based sabotage, surveillance information dominance and influence activities. This phenomenon is multiplying the demands and dilemmas faced by soldiers and officers, strategists and politicians. Actions and responses are often required with minimal lead time and with less recourse to the chain of command for technical and ethical advice.

Those training as soldiers today will utilise weaponry and technology that previous generations could not dream of, and they will consider ethical dilemmas we cannot yet foresee. What are the ethical decision-making principles and processes that can guide them? What can we learn from 'grey zone' activities of recent years? What might be done with cyber, what should be done, what is being done to us, and how is it appropriate to respond?

Cyber Warfare Ethics, edited by Professor Michael Skerker and Professor David Whetham, attempts to answer some of these questions. Skerker is a Professor at the US Naval Academy, while Whetham is Professor of Ethics and the Military Profession at King's College London, having previously held the appointment of Assistant Inspector-General to the Australian Defence Force. As editors, they combine with 13 other contributing military ethicists, including two serving military officers, to deliver a thought-provoking volume. More input from serving members would have been welcome; however, it is understandable that many current and former military members may be constrained from writing freely about cyber warfare. This volume will be of considerable interest to those preparing and leading soldiers who operate in the 'grey zone' of contemporary conflict.

The first three chapters of Part 1 explore the so-called 'just war' principles, question whether cyber attacks are equivalent to armed attacks, and consider what the answer may imply for the use of force in circumstances short of war. Part 1 also considers the limits that should be imposed on warfare in order to assure the human rights of those targeted in cyber operations. Accepting just war principles of proportionality and discrimination, and considering how these precepts apply in vastly different contexts, can support cyber operators to meet the challenges of ethical decision-making in the face of newly emergent technology. As Skerker observes (on p. 208):

> *It is true, that as a matter of fact, cyber warfare engineers have the technical means to threaten or violate [human] … rights with relative ease, potentially without reliable attribution. Yet just as it is a violation of [one's] rights if [one] is shot by a soldier; if [one's] local hospital is bombed; or if a foreign agent reads [one's] diary; so too are [that same person's] rights violated if a foreign actor does these sorts of things in a cyber operation, be it covert or overt.*

Part 2 considers whether cyber attacks comply with just war principles, and what new challenges they pose. Compliance with just war principles is important in symmetric warfare, as well as within the complexities of asymmetric conflict. Considerations of just war principles extend to situations short of war and may require us to think differently about 'grey zone' conflict. Cyber attacks can be more ethical and controlled than kinetic action, with the potential for controlled distinction in the cyber realm. Then again, they can also be unpredictable, volatile and mischievous because they can be hidden

and can easily affect non-combatants. Importantly, cyber technology may be far more accessible to decentralised non-state actors than traditional military hardware. In this context, the authors helpfully illustrate decision-making dilemmas that emerge when cyber delivers the same effects as kinetic action but with lower cost; lower physical risk; and instantaneous, selective, deniable, scalable and temporary effects (albeit potentially more indiscriminate and with higher risk of misattribution and misplaced retaliation). Contrary to the oft-quoted comment of a US official that 'if you shut down our power grid, maybe we will put a missile down one of your smokestacks', these chapters demonstrate the nuanced nature of cyber attacks. In many regards they are analogous to forms of sabotage, espionage and shaping operations, surveillance, and psychological influence operations.

Part 3 unpacks the ethics of computing technology, automation, machine learning and artificial intelligence. The authors explain the widely accepted principle that machines are not given final authority to take life but they can speed up the decision-making process to use force. Moreover, they may in fact support ethical decision-making because artificial intelligence might be trained to be more morally consistent. Humans can err, and one author helpfully offers the cautionary note that this risk may be acute when influenced by the 'Dark Triad' of Machiavellianism, narcissism and psychopathy. Machines do not get tired or angry; however, when they miscalculate (or are potentially misled) the scope for error can be far worse. Machines can also be unfair at various levels, such as when programmed to benevolently filter out destructive influences online or at the customs gate. Further, they may be affected by discriminatory algorithmic bias. The whole book, but especially the final three chapters, suggests the imperative of scrutiny and healthy scepticism as to the ethics of cyber warfare.

For teaching cyber warfare ethics, *Cyber Warfare Ethics* offers helpful case studies that could be usefully wargamed based on scenarios raised in the book. These include several well-known historical examples such as Israel's Operation Orchard cyber sabotage of Syria's radar to allow an attack on a nuclear reactor; Stuxnet's targeting of the Iranian nuclear program, stealing commercial patents and military technology; and ballot box interference in the 2016 US elections (and possibly the UK Brexit vote). Other scenarios are either imagined or hypothetical possibilities that invite the reader to reflect on the ethical issues they symbolise. Examples include disabling emergency dispatch systems; undermining utilities infrastructure; vaccine

disinformation; hacking drones or other weapons; and interfering with banking, traffic, hospital or self-driving systems.

Cyber Warfare Ethics is likely to evoke further questions in the reader's mind around the use of cyber technology in modern conflict. For example, assuming military ethics training is necessary for all ranks – including the 'strategic moral Corporal' – what would best practice military ethics training look like for trainees and members of electronic warfare and cyber units? What is the psychological effect on operators of navigating the high-pressure domain of cyber? While there has been extensive research on and support for drone operators, what equivalent attentiveness is needed for cyber operators to mitigate the risks of moral injury? In the range of responses from outright war to force short of war, to peacemaking, what is the role and potency of nonviolence and how might this be expressed in the cyber domain? For my own part as a Baptist chaplain with a clear preference for avoiding violence, let alone war, it is self-evident that the military potential of cyber technology must be harnessed within accepted ethical just war principles. So when and in what ways might cyber engagement foster restraint and the mission better than spiralling violence with kinetic action?

These are contested questions in a contested space. As military operators and strategists alike struggle to understand the full implications of cyber technology within the military domain, Skerker and Whetham have assembled a helpful kaleidoscope of chapters in *Cyber Warfare Ethics* to help address some of the most pressing issues. As a result, this book is a valuable resource for civilians and military members working in the cyber realm, and those responsible for leading and training them. After all, better informed decision-makers are inevitably better prepared to address the ethical considerations and implications of military cyber capabilities.

About the Reviewer

Chaplain Darren Cronshaw is an Army Reservist who has served at Army School of Transport, Puckapunyal; at 1st Recruit Training Battalion, Kapooka; and in 2023 on full-time duty at the Defence Force School of Signals. For civilian work he pastors Auburn Baptist Church and teaches leadership and research methods with the Australian College of Ministries (Sydney College of Divinity).

Book Review

Eight Hundred Heroes: China's Lost Battalion and the Fall of Shanghai

Stephen Robinson (Exisle Publishing, 2022, ISBN 9781922539205, 304 pp)

Reviewed by Tim Gellel

Every army has its Thermopylae. One of modern China's is the story of Lieutenant Colonel Xie Jinyuan's four-day defence of the Sihang Warehouse against Japanese attacks during the 1937 Battle of Shanghai. Stephen Robinson's *Eight Hundred Heroes*, which examines that story, studies that action as an information operation as well as a tactical, unit-level fight.

The Second Battle of Shanghai was already more than two months old when Xie's battalion was sent to the Sihang Warehouse. Tactically the site was chosen because the building afforded a strong defensive position. Its concrete and brick construction offered protection from direct and indirect fire. At six stories high, it held commanding views over approaches from the west, north and east. And the building's southern flank was protected by the 70 metre wide Suzhou Creek. It was this latter feature that contributed to the action's tactical and strategic significance.

The information operation began almost immediately. Xie's 1st Battalion, 524th Regiment numbered closer to 420 than the 800 men of a complete battalion, but the latter figure was exploited to conceal his unit's true strength from Japanese forces. The battalion was drawn from the National Revolutionary Army's German-trained 88th Division – one of three such divisions at the time. Xie's soldiers were specifically chosen for a desperate and dangerous mission intended to achieve a strategic information operations aim that outweighed its tactical value.

At the strategic level, only the Suzhou Creek separated the warehouse from Shanghai's International Settlement, where 14 mostly European nations enjoyed extraterritorial rights under treaties with Beijing. Observing from building rooftops, foreign journalists and officials had a ringside seat as they documented the battle on the opposite bank. The Chinese Nationalist Government hoped that Western reports of the Eight Hundred's valiant stand would rouse international sentiment to influence an international conference that was considering 'peaceable means' of hastening the end of the Sino-Japanese War. Unfortunately for the Nationalists, while the defence of the Sihang Warehouse generated much support, it did not translate into the international pressure needed to halt the Japanese invasion.

That didn't stop the Eight Hundred's story developing into legend. And around one-third of Robinson's book explores the *mythos* surrounding the battle at the Sihang Warehouse, including how it was exploited by the Nationalist Government and (after China's 1947 Civil War) by Taiwan. This included the release of four movies: two wartime productions, both titled *800 Heroes* (and both released in 1938), *Eight Hundred Heroes* (1977), and *The Eight Hundred* (2020).

A real strength of Robinson's book is that he uses Chinese-language sources to provide an English-speaking audience with access to this episode of bitter, close-quarters urban fighting reminiscent of battles like Stalingrad which are better known by English-speaking audiences. In doing so, Robinson reminds the reader that the war in China tied up more Imperial Japanese Army divisions than were committed to the Indian, South-East Asian and Pacific theatres, right up to the end of the Second World War.

Here Robinson follows a similar path to the one established by the linguist-historian David Glantz, who, from the 1990s onwards, introduced accounts from Soviet records to English-language audiences to contextualise accounts of the Eastern Front that were based mostly on German records.

The *Eight Hundred Heroes* dust jacket strikingly captures another aspect of the Sino-Japanese War's complexity. English-language readers would normally associate soldiers wearing the distinctive German 'coal-scuttle' helmet as being on the 'wrong side' of history. While Nazi Germany's military support to the Nationalists dried up in favour of support to Japan with the outbreak of the Second Sino-Japanese War, it points to the shifting allegiances that characterised the Second World War, which too often evade accounts of this tumultuous period.

Robinson's *Eight Hundred Heroes* complements several works released over the last decade that focus on higher level operations in the Sino-Japanese War. Of particular note are Peter Harmsen's *Shanghai 1937: Stalingrad on the Yangtze* (Casemate Publishers, 2015); and Mark Peattie, Edward Drea and Hans van de Ven's *The Battle for China: Essays on the Military History of the Sino-Japanese War of 1937–1945* (Stanford University Press, 2010).

For modern historians and strategic analysts, it is interesting to reflect that the Chinese Communist Party (CCP) was initially reluctant to embrace the Eight Hundred Heroes' story because Xie's battalion was part of the Nationalist Army. However, from the 1990s onwards, the tale entered mainland China's education system and consciousness, including as a fourth motion picture, *The Eight Hundred* – one of the highest grossing films of 2020. The stand taken by Xie's battalion against the Japanese is now commemorated both in the People's Republic of China and in Taiwan. Much as the Australian Army has its own *mythos* (Gallipoli and Kokoda are two key examples), understanding the Eight Hundred Heroes' story and legacy helps understand part of modern mainland China's identity.

Eight Hundred Heroes reminds the reader that long before the Vietnam War became the 'television war', or the current war in Ukraine became the 'social media war', battles have often been conducted within the sights of the press. What is unique about the defence of the Sihang Warehouse is that it was planned with exactly that intention in mind. And while it ultimately did not deliver the result sought by the Nationalist Government in 1937, 85 years later the Eight Hundred Heroes' story is increasingly embraced by one of the Nationalist Government's former adversaries, the CCP and the People's Liberation Army. *Eight Hundred Heroes* offers the reader an engaging introduction to the complexity of modern Chinese identity, as seen through the lens of a unique, battalion-level information operation.

Disclaimer: While MAJ Robinson is a part-time member of the Australian Army History Unit, this work was undertaken outside of his Army duties.

About the Reviewer

Mr Tim Gellel is the Head of the Australian Army History Unit, responsible for preserving Army's heritage through a nationwide museums network, and promoting Army's History through programs such as the Army History Publishing Scheme and the biennial Chief of Army History Conference. Prior to taking up this appointment, he was a serving Army Officer. He holds a Master of Arts through Deakin University.

Book Review

The Witness

Tom Gilling (Allen and Unwin, 2022, ISBN 9781760879273, 320 pp)

Reviewed by James Bryant

Two thousand four hundred Allied servicemen died as prisoners of the Japanese at Sandakan in Borneo, many on the so-called 'death march' that took place along a 260 kilometre long jungle track between Sandakan and Ranau. Exhausted, malnourished and wracked by illnesses like malaria and beri-beri, all who fell out on that track were kicked or bludgeoned to death, or shot. Three-quarters of these fatalities were Australian. As Tom Gilling sets out in his book *The Witness*, the last to die on the march was Private John Skinner from Tenterfield, who was dragged to the edge of a slit trench, blindfolded and decapitated.

But six had escaped the march and survived. What would it take to survive such an ordeal? While there isn't scope in *The Witness* to consider the circumstances and character of all six, one fits the archetypal image of the Aussie survivor. Bombardier Richard Braithwaite is the first to reach the Allied lines and safety. Tough and driven, he is hard for his debriefers to handle. But it is not Braithwaite on whom Gilling focuses his narrative. Instead it is Warrant Officer Bill 'Stippy' Sticpewich who is by far the most shadowy and divisive figure among the escapees. Far from admiring him, his captive peers all loathe him, calling him 'the White Jap'. The author's

decision to tell Stippy's story is a masterstroke as it takes the reader on a narrative journey rarely traced in the literature of the POW experience.

Bright and resourceful, Sticpewich possesses rat cunning in abundance. Good with his hands, unlike most of his fellow inmates Sticpewich does what he feels he must to ingratiate himself with his Japanese guards and their commander, the sadistic Hoshijima, in order to survive. This approach sees him maintaining and repairing camp equipment as the head of a workshop, a job that also involves creating creature comforts for the guards. Critically, those in the technical section are given extra rations and are exempt from the work of clearing the jungle to build an airfield. This is the exhausting, soul-crushing mission of the camp's other prisoners – a job that kills them in droves day after day.

By viewing the horror of the Allied experience in the Pacific through the morally ambiguous character of Stippy, this book differentiates itself from the usual POW narrative. While Sticpewich found himself a role that that kept him in much better shape than the average POW, he was nevertheless also a member of the Escape Committee. Indeed, it was acknowledged by some of the survivors that Sticpewich saved fellow POWs' lives on a number of occasions. Significantly too, at the subsequent war trials Sticpewich's testimony was critical in condemning many of the Japanese guards and their commanders to death. So accurate and detailed was his memory of events, and so commanding and authoritative his presence in the witness box, that he was *the* central plinth upon which many of the prosecutions depended. He dominated proceedings. Here too, however, Gilling finds Sticpewich deceitful. Specifically, on several occasions Stippy feigned a clear recollection of events at which he was not actually present – testimony that resulted in a number of Japanese guards swinging from the gallows.

Gilling's prose style is simple and straightforward, almost stark. While some may find it rudimentary, unpolished or prosaic, others will find it just right. Gilling's narrative lets the horrors of Sandakan speak for themselves, unembellished by descriptors. There are, however, areas for improvement. For example, this book would have benefited from the inclusion of a map or two early on. A broad introductory chronology would also have been useful, as would a list of key characters, as the reader inevitably starts to forget who is who, particularly on the Japanese side. The narrative flow of the latter section of the book is also disjointed, making it hard to follow, while

Gilling doesn't seem entirely sure how to close the story out. But these are quibbles about what is otherwise an enormously rewarding read.

It is the fascinating character of Bill Sticpewich that binds this book together. Through its narrative focus, the conditions in the camps and on the death march are brought to life. The reader also gains unique insights into the conduct of the subsequent war crimes trials. Further, this book adds a moral perspective to the POW experience that is absent among titles more interested in reinforcing stereotypes around mateship and personal resilience. Gilling centres on the nature of good and evil in conditions like those faced by Allied POWs in the Pacific, and poses some interesting questions on freedom of choice as the reader is forced to consider what they would have done in such circumstances.

It may be that the best way, indeed the only way, to address the horrors of war is to do so obliquely – via a narrative device like that adopted by Gilling. The American author Kurt Vonnegut took a similar approach in the semi-autobiographical *Slaughterhouse Five* when he created the figure of Billy Pilgrim, another Allied POW, this time in Europe. In that book, the main character finds himself clearing bodies after the firebombing of Dresden in early 1945. In a story told in a non-linear way (using flashbacks and time travel) it is as if Vonnegut cannot articulate the horror of his experience directly. With the subject matter simply too painful to be viewed front on, the lens is refracted. There are clear parallels in the approach that Gilling takes to the character of Sticpewich, a man stripped bare by his circumstances and his overwhelming desire to survive. That he was a real prisoner makes Stippy a far richer figure for examination than would be delivered by any work of fiction.

About the Reviewer

A graduate of the Defence Academy, the Royal Military College and the Australian Command and Staff College, **Lieutenant Colonel James Bryant** has a First Class Honours Degree in History, two Masters Degrees, and was the Chief of Defence Force Scholar in 2006. An infantry officer with service in Somalia and East Timor, he has also been a development adviser in Afghanistan with AusAID, an analyst in the Office of National Assessments, and a policy officer in the Department of the Prime Minister and Cabinet. He now works for the Australian Army Research Centre in an Army Reserve capacity.

Book Review

Elite Souls: Portraits of Valor in Iraq and Afghanistan

Raymond James Raymond (Naval Institute Press, 2022, ISBN 9781682477137, 384 pp)

Reviewed by Garth Pratten

In many respects *Elite Souls: Portraits of Valor in Iraq and Afghanistan* is a straightforward book. Raymond James Raymond, a former British diplomat and more recently historian and social scientist, delivers exactly what he promises in the title: five stories of young United States Army officers in action during the most intense period of operations in Iraq and Afghanistan (2007–2010). Aside from the personal courage and dedication to duty exhibited by each officer, they are united by all being graduates of the United States Military Academy (USMA) – popularly known as West Point – and by all being recipients of the Alexander R. Nininger Medal, awarded annually to a recent USMA graduate considered 'an exemplar of heroic action in battle'.

The stories of junior officers in action are the great strength of this book. Although it documents the experience of just five officers – three infantry platoon leaders and two OH-58 Kiowa Warrior pilots – amidst an army of thousands, each account provides an insight into the intensity and diversity of the combat experience of the United States Army in Iraq and

Afghanistan. Having conducted extended interviews with all of his subjects, Raymond is able to place his readers beside Lieutenant Nick Eslinger in a dark Samarra street as he instinctively grabs and returns an insurgent grenade to protect his patrol; in the cockpit of a Kiowa with Lieutenant Bobby Sickler as he chases an insurgent weapons team across the city of Mosul; and in the turret of a Bradley infantry fighting vehicle with Lieutenant Ross Pixler as a 255 kilogram IED explodes beneath it. Raymond's focus is not just on individual acts of courage. He describes each officer's approach to his first operational command and, in so doing, provides much food for thought about the challenges facing platoon/troop commanders and how to prepare them for their role.

But Raymond is concerned with more than describing tactical-level leadership. Taking his lead from the 19th century French military theorist Ardant du Picq, he sets out to demonstrate that the type of physical courage demonstrated by his subjects 'flows from moral courage and strong moral values' and is thus found among 'elite souls'. The first half of the book endeavours to trace the development of Raymond's elite souls through their family life and schooling to their time in the 'austere beauty' of West Point.

A self-confessed 'admirer' of USMA and a former member of its academic staff, Raymond argues that USMA was central to the creation of his elite souls by building on strong moral foundations established by their families and instilling the 'classical virtues': 'moral and physical courage, self-sacrifice, a deep commitment to duty, personal and professional honour, and selfless service to the nation'. He provides a chapter-length account of USMA's development that is both organisational and cultural history, introducing the reader to novel terms such as 'Beast Barracks', 'plebes', 'cows', 'yearlings' and 'firsties', as well as the various scandals, inquiries, reforms, innovations and personalities that have shaped its program. For those with little knowledge of USMA and its ways, it will be insightful reading. Raymond's intent with this short history is to demonstrate that each of his subjects benefited from a 'leadership development model honed over several decades'.

Just as he does subsequently for their operational service, Raymond narrates the experience of each of his subjects at USMA. These chapters are heavy on detail regarding each individual's passage through the four-year academic and military program but are much lighter on reflection and thus do not strongly support his core argument. At times all of Raymond's subjects struggled at USMA, particularly academically, but it is not always clear why, or how, they managed to recover and prosper. Some common factors in their ultimate success at USMA do emerge, however: trusted friends, respected mentors, and the strength and willingness to persevere. Given Raymond's earlier Whiggish narrative about the evolution of the USMA program, it is notable that bullying, hazing or intimidation feature in most of his subjects' West Point recollections in some form. Raymond does note that their experience at USMA was 'imperfect' but he is a partisan observer and seems reluctant to delve much further.

Raymond's operational accounts actually seem to reduce the significance of USMA in developing capable combat leaders, or at the very least demonstrate that it was just one among a web of influences. What is most evident is the role of experienced company and battalion commanders with the knowledge and insight to recognise their responsibility to train and mentor their junior officers and give them the scope to grow into their new commands. Also notable is that several of these mentors were not USMA graduates, calling into question the unique place this book accords that institution. Raymond draws out a narrative of selfless service and moral virtue from the experiences of each of his subjects but there are occasions where this effort seems either laboured or unreflective. He makes much of the idea of the officer as a servant to his soldiers, but a more enlightening discussion would perhaps have resulted if Raymond had engaged his subjects about how they balanced this role against their responsibility to their mission.

One of the more extraordinary incidents Raymond relates involves Lieutenant Pixler absconding from a medical facility after being a victim of two IED detonations in the space of an afternoon and then, without identification, equipment or a weapon, bluffing his way onto an aircraft to return to his unit. Raymond presents this as an example of Pixler's selfless devotion to his platoon but fails to engage with the complexity of the act. He does not question the deception involved or the misdirection of the

helicopter. Pixler was to be evacuated to be tested for potential brain injury and may have been suffering cognitive impairment. In returning to his unit he may have presented a risk by being unable to perform at his full physical or mental capacity. It is not too much of a stretch to see this as a selfish as much as a selfless act.

When addressing post-traumatic stress syndrome (PTSD) towards the end of the book, Raymond pushes his argument, and his expertise, too far. In his interviews he asked each of his subjects if they had suffered from PTSD, to which all replied they had not. Raymond attributes this to their strong moral foundation and to the framing of their mission in moral terms. It is misleading and dangerous to discuss such a multifaceted psychological condition as PTSD in such simple terms. Even within the pages of *Elite Souls* there is evidence, in the form of references to the suicides of two inspiring and respected combat leaders, to suggest that more complex and sensitive treatment of PTSD is required.

Unfortunately *Elite Souls* is repetitive and poorly edited, which detracts from its more commendable qualities and may test the patience of some. The book consists of five thematic parts – 'Early Life', 'The U.S. Military Academy', 'Preparation', 'Into Battle', 'Epilogue' – with chapters dedicated to the five officers in each. This approach leads to a cookie-cutter feel in many chapters, and those in the second and third parts needlessly repeat much information. Indeed, on multiple occasions whole passages are repeated verbatim, in one instance on the same page. More attention to detail was needed. The otherwise dramatic story of a pair of Kiowas fighting a prolonged low-level engagement to protect an ambushed engineer platoon is marred by reference to the ubiquitous grape huts of Afghanistan's Arghandab Valley as 'great putts'. Exasperating to an Australian readership will be a reference to the presence of 'Australian' troops in Regional Command North, which should have been a reference to Austrians, and Canadians will be equally frustrated by reference to 'French' Leopard tanks in the Arghandab.

Elite Souls is not a systematic study. In form, it is a collection of professional biographies of a tiny sample of United States Army officers of the 9/11 generation, in tone, a homage to USMA. It is difficult, however, to sustain the lofty argument Raymond advances on the basis of the careers of just five individuals, selected by the alumni of USMA as representatives of its values and ethos. But while *Elite Souls* has its flaws, these neither diminish the stories of military professionalism, service, and courage that it relates nor lessen its value as part of the record of the experience of the United States Army in the wars in Iraq and Afghanistan.

About the Reviewer

Associate Professor Garth Pratten is a member of the Strategic and Defence Studies Centre at the Australian National University. An historian by training, he has previously worked for the Australian Army's Training Command and the Australian War Memorial, and taught in the Department of War Studies at the Royal Military Academy Sandhurst. Among his research interests are the experience of command and the conduct of military operations.

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the AAJ Editorial Advisory Board for consideration. The Director General, Future Land Warfare is the Chief of Army's approving authority for publication content.

Please note that the AARC cannot accept articles which have been published elsewhere or are currently under consideration for publication with another journal.

Word length (including endnotes)

- Journal articles can be between 4,000-6,000 words in length
- Book reviews can be any length up to 1000 words

Author biography

A 100 word (approx.) biography should be included with a summary of your educational history and professional experience.

Deadline

The AARC accepts AAJ submissions throughout the year.

Formatting and Style

Guidance on formatting and style is available in the Submission Guidelines for AARC Publications (https://researchcentre.army.gov.au/about-us/contribute/aarc-publications-advice-contributors).

Please make your submission using the AARC's Contribute page (https://researchcentre.army.gov.au/about-us/contribute/contribute-article-paper-or-publication).

Australian Army Occasional Paper series Call for Submissions

Are you studying towards a postgraduate degree or doctorate and are writing a substantive research paper? If you have written an original manuscript on a priority topic identified in the Army Futures Research Framework, the Australian Army Research Centre (AARC) may be interested in publishing your work as an AARC Occasional Paper (https://researchcentre.army.gov.au/library/occasional-papers).

Occasional Papers are significant stand-alone works intended to generate informed discussion and new ideas that contribute to Army modernisation and the future of land power. The Occasional Paper series seeks both a domestic and global audience.

The AARC welcomes submissions from professionals of all ranks and experience. Papers should comprise structured arguments that lead to logical conclusions or recommendations that can help posture Army for future land warfare challenges in the short, medium and long term.

Process

Authors work with the AARC's editorial team in a process of iterative review. Initially, submissions are assessed for suitability by the AARC Editorial Director and/or Managing Editor, with selected manuscripts subjected to review by an academic and a subject matter expert. The Director General, Future Land Warfare is the ultimate publication authority for all AARC Occasional Papers.

The AARC cannot accept articles that have been published elsewhere or are currently under consideration for publication in other formats.

Word length (including endnotes)

Occasional Paper submissions can be up to 20,000+ words in length.

Author biography

A 100 word (approx.) biography should be included with a summary of your educational history and professional experience.

Paper abstract

A paper abstract should be included. The purpose of the abstract is to summarise the major aspects of a paper. A good abstract will also encourage a reader to read the entire piece. For this reason it should be an engagingly written piece of prose between 200 and 500 words that is not simply a rewrite of the introduction in shorter form.

Deadline

The AARC accepts Occasional Paper submissions throughout the year.

Formatting and Style

Guidance on formatting and style is available in the Submission Guidelines for AARC Publications (https://researchcentre.army.gov.au/about-us/contribute/aarc-publications-advice-contributors).

Please make you submission using the AARC's Contribute page (https://researchcentre.army.gov.au/about-us/contribute/contribute-article-paper-or-publication).

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