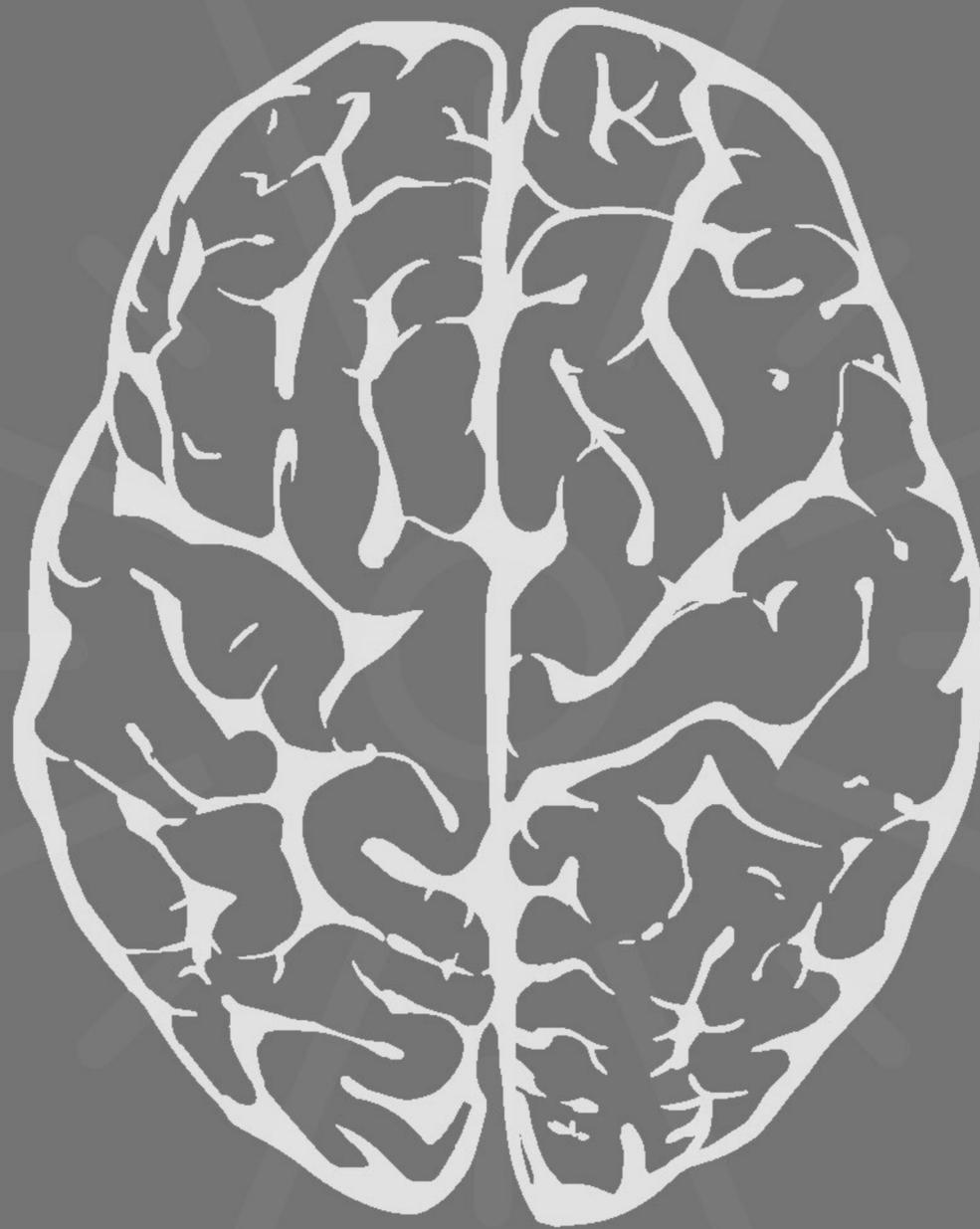


POINTER Monograph No. 14

# DEFENCE PSYCHOLOGY

EMPOWERING PEOPLE,  
ENHANCING PERFORMANCE



55 YEARS OF PSYCHOLOGY IN MINDEF/SAF

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# DEFENCE PSYCHOLOGY

*Empowering People,  
Enhancing Performance*



*A Publication of the Singapore Armed Forces*

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## Foreword

# PERMANENT SECRETARY (DEFENCE)

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MR CHAN HENG KEE

Psychological Defence, a pillar under our Total Defence concept, is crucial to the SAF, MINDEF and Singapore. Applied to the nation, it refers to our citizens' confidence and commitment to Singapore, and their readiness to protect what is ours. Applied to MINDEF and the SAF, it is about strengthening our soldiers' motivation, cohesiveness, confidence and mental resilience in defending Singapore.

While these concepts have their roots in war, psychological defence is also fast becoming critical to meeting new threats in peace and "greyzone" scenarios. Radicalisation and terrorism, hostile influence, misinformation movements, and other "non-kinetic" campaigns are just a few examples of the range of threats that can test our people's confidence and cohesiveness, and belief in our country and military. There are other forms of challenges to our mental resilience which are invisible but no less detrimental. These could come in the form of pandemics like COVID-19 or even daily stressors in our lives which impact our mental health.

Seen in this light, it is no surprise that the work of the Defence Psychology Community (DPC) has expanded over the years. In its initial years, the DPC focused mainly on supporting the establishment of a conscript force through designing assessments for pre-enlistee screening. Over time, the work of the DPC has grown to encompass other domains, as it develops more knowledge and skills.

Among their many valuable contributions, our psychologists have raised the potential and performance of our workforce through assessment and selection, improved our people's psychological health and resilience, conducted research for policies, and provided insights for engagement efforts to maintain public support and confidence in the SAF and NS.

While the demands on the DPC have expanded, so too has the pool of scientific knowledge, technological tools and other support at their disposal. Emerging fields such as behavioural science as well as new technology and data tools offer DPC colleagues many fresh possibilities for application. Today, the DPC also enjoys greater support from leaders who increasingly recognise the value of psychological insights, as well as partners who find immense value in collaborating with us.

As the DPC commemorates its 55<sup>th</sup> anniversary with this special edition monograph, I would like to thank all DPC colleagues for their valuable contributions. I hope that you will approach the new demands and challenges with excitement on being able to make a larger difference. I encourage you to keep abreast of the emerging science, knowledge and tools, and apply them to MINDEF and the SAF. And I trust that you will always remember the vital role you play in Psychological Defence, not only for our organisation, but for the entire nation.

A handwritten signature in black ink, appearing to read 'Chan Heng Kee'. The signature is fluid and cursive, with a long horizontal stroke at the end.

Chan Heng Kee  
Permanent Secretary (Defence)



## Foreword

# CHIEF OF DEFENCE FORCE

LIEUTENANT-GENERAL MELVYN ONG

55 years is a long time. Looking back, many tend to associate the business of defence psychology with the performance and mental health of our units and the force in general. As we look forward, some questions for the DPC come to my mind.

How can advancements in psychological assessment technology and science inform personnel selection and classification, especially to support the SAF in an era of greyzone and cyber conflict, and as we grow our intelligence and psychological defence capabilities?

How can recent advances in psychology provide a roadmap for dealing with other critical issues, including strengthening the resilience of our NS soldiers amidst societal stressors, and the psychology of leaders and teams in the SAF amidst more numerous and complex work demands?

What are the advances in occupational health psychology which will help us to not only manage the unwell, but prevent those who are well from becoming unwell at the workplace, especially with increasing stressors from the pandemic and work-from-home arrangements?

The list of demands on the DPC is a long one, and growing. As our core value proclaims, we have done well to care for our soldiers the last 55 years. For instance, we have developed all manner of psychometric assessments to place soldiers in the right jobs. We have a well-honed framework to prepare our personnel for a full range of missions. In recent years, the DPC has also leveraged

programmes such as the Army's Soldier Strong campaign and designed resilience programmes to strengthen the 'Hearts and Minds' of our soldiers and commanders. Over the last few years, the DPC has also supported the mental health needs of our servicemen, by deploying psychologists on the ground in operational and training commands, while partnering with commanders to realise the integrated SAF care system. This year, the SAF kicked off a multi-year Well-Being Campaign focused on increasing resources for better mental health awareness and preparedness while encouraging help-seeking behaviour. As awareness about mental health and wellness become increasingly commonplace in the SAF, I am encouraged to see more of our servicemen and servicewomen taking charge of their personal well-being and engaging in mental health resources provided by the DPC.

The theme of the monograph, "Empowering People, Enhancing Performance", is therefore an appropriate one. I am heartened that the DPC realises its purpose at the heart of a performing SAF, the abiding need to partner commanders for operationally ready units, and to always stay at the cutting edge of military psychology for the SAF, especially as we realise our SAF 2040 ambitions.

Congratulations on your 55<sup>th</sup> anniversary, and I look forward to amazing things from the DPC in the years ahead.

A handwritten signature in black ink, appearing to be 'M Ong'.

LG Melvyn Ong  
Chief of Defence Force



## Preface

# DIRECTOR, DEFENCE PSYCHOLOGY DEPT./ CHIEF PSYCHOLOGIST

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**SLTC ADELINE HENG**

The Defence Psychology Community (DPC) had its humble beginning in 1966, when the Psychological Centre was established a year before National Service was instituted. In a span of 55 years, the DPC has grown alongside the SAF and become an integral part of the organisation.

Amidst numerous challenges through the years, our community has stood ready to partner commanders and stakeholders, to achieve mission success and organisational excellence.

Today, the Defence Psychology Department (DPD) functions as the specialist headquarters for psychologists and research executives across MINDEF/SAF. We partner stakeholders in leadership and organisational development, improving person-job-organisation fit, employee engagement and NS experience, communications, safety, performance maximisation, and psychological resilience and health. Indeed, the practice of psychology in MINDEF/SAF has expanded and evolved to leverage and keep up with the emerging demands of new

operations, technology, the organisation, and society.

In the coming decade, we will face fresh challenges and more wicked problems. Internal challenges highlight our need to continuously optimise our human capital, and to develop our next generation of effective leaders. External challenges, like the societal and technological landscape, will reinforce the criticality of enhancing Singaporeans' commitment to defence and National Service. This monograph is a compilation of the efforts of all members of the DPC. Each article provides a glimpse of the way forward, where psychology can serve as a capability multiplier to maximise human potential to achieve operational and organisational objectives. Navigating towards uncharted horizons, the DPC is committed to strengthen our partnership with commanders and stakeholders to achieve mission success together.

A stylized, handwritten signature in black ink, consisting of several bold, sweeping strokes.

**SLTC Adeline Heng**

**Director, Defence Psychology Dept./Chief Psychologist**



# ASSESSMENTS FOR PERSONNEL DECISIONS IN MINDEF/SAF

By Ms Carolyn Chah Choo Luah, Ms Vanessa Kho Yuru & Ms Grace Yip

*'People are not your most important asset. The right people are.'*

– Jim Collins<sup>1</sup>

## INTRODUCTION

A competent armed force is key towards strengthening and maintaining Singapore's deterrence against potential adversaries. In the event that deterrence and diplomacy is insufficient to secure the peace and sovereignty of our nation, MINDEF/SAF personnel will need to be at their best to defend and secure a swift victory for Singapore.

A conscription system ensures that the SAF continues to sustain a healthy fighting force of Full-Time National Service (FTNS) and Operationally Ready National Service (ORNS) service personnel. Conscription gives the SAF the numbers, which alone is insufficient. The conscripted population presents a wide range of capabilities, which the SAF must leverage meaningfully to meet our defence requirements and maximise our servicemen's contributions. SAF leaders and servicemen can perform their best when placed in suitable vocations depending on their skills and attributes. Sub-optimising the incumbents' potential through poor job fit may lead to direct and knock-on effects such as poor performance, low motivation and disengagement. Job fit or lack of it in fact does not impact work behaviours in isolation. Leadership plays an important moderating role. Positive work behaviours from good job fit can be fully realized through effective leadership and training. While poor job fit should be minimal even for a conscripted force, its impact can be mitigated to some extent by effective leadership. If not managed by leadership and training in a timely manner, poor job fit could even lead to a negative impact on unit performance and thus the SAF's operational effectiveness.

## CHALLENGES

Multiplicity of organisational requirements. The task of placing thousands of enlistees into suitable

vocations is a recurring challenge of MINDEF/SAF. A customised, accurate and efficient system of assessing enlistees' strengths and weaknesses is essential to inform identification, selection and assignment decisions and to reduce downstream risks associated with personnel in vocations which do not optimise their abilities and attributes.<sup>2</sup>

Multiplicity of demands posed by different vocations/roles. Another key challenge that MINDEF/SAF faces is what and how to assess the individuals, given the multiplicity of vocations with their differing requirements and demands. The intricacy of the challenge increases due to the varying demands of vocations/roles, some of which being more niche than others. Some vocations require intensive assessments, whereas for others, fundamental assessments will suffice. Taking into consideration individual aptitudes and attributes that are predictive of future performance will aid in assigning personnel to suitable vocations, thus maximising their contributions. Many methods are available that an organisation can choose from to assess candidates on aptitudes and attributes predictive of training and job performance (see *Chart 1*). The choice of assessment methods differs depending on the assessment purpose, volume (i.e. mass by the thousands or many times fewer) and costs involved (e.g. use of proprietary assessments incur patent royalty fee).

Testing in the military has constraints. Specific to MINDEF/SAF, commercial-off-the-shelf (COTS) tests are often not suitable for several reasons: Firstly, COTS tests are often developed and normed based on western samples and thus may not be suitable for the Singapore context. While some COTS tests could be relevant for use, efforts to adapt them to the local context and to collect trial data for examining their psychometric properties remain essential. Secondly, a majority of COTS tests focuses on assessing psychological constructs that are relevant for occupations of high complexity and psychological demands (e.g., senior leadership, executives, professionals & high-risk occupations), and thus may not be applicable to

assessing constructs predictive of military performance in a wide range of vocations from the highly structured and routine to the complex and demanding. Thirdly, the use of COTS tests may carry information/operations security risks (e.g., psychological test data of populations, be it enlistees or senior commanders, sitting in an off-shore server).

## SOLUTIONS

Determining what to assess. The process of assessment development often starts with a Job Analysis (JA). The JA, by understanding the tasks and challenges encountered by job incumbents, seeks to establish the Knowledge, Skills, Abilities and Attributes (KSAA) an individual requires to perform successfully in a particular job. These KSAs drive the development of measures to support the selection and assignment decisions. Using an example reported in the public domain, the US Department of Defense (DoD) Cyberspace Workforce Strategy in 2013 established the need for assessing aptitude and qualifications because a successful Cyberspace employee is not necessarily one with a Science, Technology, Engineering and Math (STEM) background. For assessing new accessions, a Cyber Test (CT) assessing critical thinking and problem solving abilities was developed to predict cyber aptitude

measurable by course performance. CT assesses constructs that are beyond general mental ability that a basic testing programme called the Armed Services Vocational Aptitude Battery (ASVAB) measures.<sup>3</sup> Similarly, the selection of Cyber NSFs in Singapore recognises the diversity of the NSF resource pool which presents a wide range of knowledge, skills, and training background, and the JA ensures the identified KSAs for cybersecurity-related work are sufficiently assessed.

Incorporating assessments backed by validity data. A further consideration required in the development of assessments is the need to utilise measures that demonstrate good predictive validity. *Chart 1* summarises the validity statistics for various assessment measures in relation to training and job performance. The top three measures most predictive of training and job performance are (1) the routine winner of cognitive ability tests with  $r=.65-.67$ , with interviews coming in second at  $r=.41-.48$  and peer ratings third at  $r=.36-.38$ . Personality tests have been found more predictive of training performance than job performance hovering around between  $r=.13-.25$ . On the other hand, graphology, which is a much less useful predictor with an almost zero correlation with an overall job performance, does not have a place in our assessment systems, though it features in 15.8% of



Picture 1: Cyber NSFs undergoing cyber training at the SAF's Cyber Defence Test and Evaluation Centre.

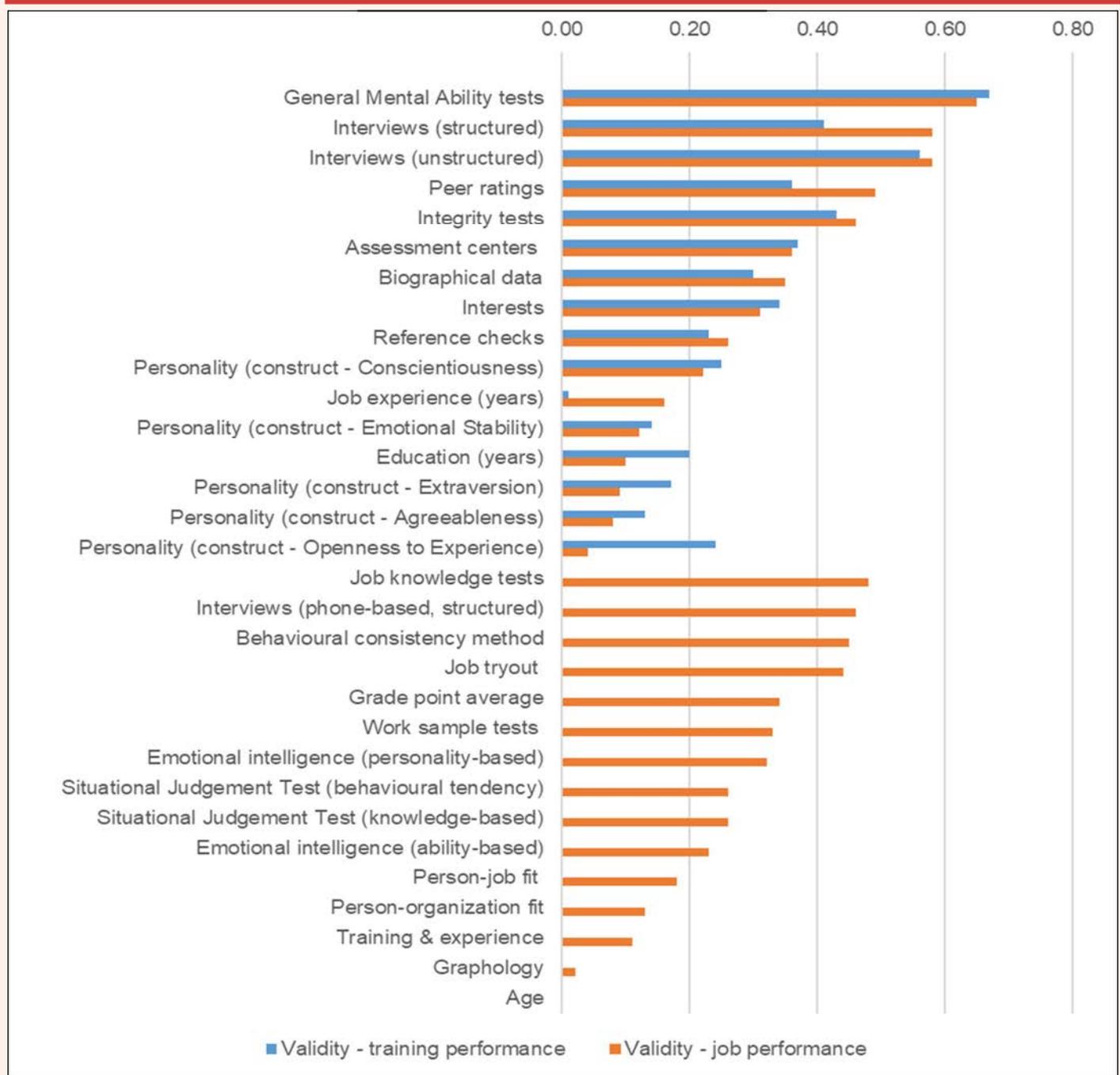


Chart 1: Validity of Assessment Measures with Training and Job Performance.<sup>4</sup>

*Note:* In psychological research, the interpretation of correlations is made in terms of effect size, which refers to the strength of relationship between the assessment and outcome measures. Based on Cohen’s conventions, .10 is deemed small, .30 moderate and .50 large.<sup>5</sup>

personnel selection procedures in German-speaking Switzerland.<sup>6</sup> Though often based on studies utilising data from non-military samples, such research is useful in informing MINDEF/SAF on which assessments to explore, develop and trial for service selection and assignment decisions. Decisions to employ assessments are made based on in-house validation research. For example, a key assessment system in the Pre-Enlistee (PE) testing programme is the Manpower Aptitude Assessment System (MAPAS), which comprises cognitive ability tests and Personality Measure (PM), found to

predict training and job performance as shown in Chart 1. In fact, assessment measures could be combined to achieve greater predictive power. For instance, combining cognitive ability and personality (either Conscientiousness or Openness to Experience) pushes validity to R=.7. While combining cognitive ability with an interview can raise R>.7, it is not a cost-effective measure to be used on PEs, given the volume and intensity of effort needed to support the conduct of interviews. MAPAS is our local version of the US military’s ASVAB.

## CURRENT ASSESSMENT AND SELECTION SYSTEMS

Assessments catered for pre- and post-enlistment. MINDEF/SAF's assessment systems generally front-load psychometric testing, with assessment data from psychometric tools for PEs efficiently obtained as part of medical screening prior to enlistment. Other assessment processes that may involve greater complexity or more manpower to execute are conducted post-enlistment (e.g., situational testing based on military simulations, assessments of aptitude for learning foreign languages requiring audio equipment to conduct listening tests). Pre and post enlistment assessments often complement each other by assessing multiple facets of a psychological construct, and can be integrated to derive more informed and accurate selection decisions.<sup>7</sup>



Picture 2: Pre-enlistees undergoing psychometric testing.

Pre-enlistment psychometric testing provides MINDEF/SAF with assessment data to make initial selection/assignment decisions. PEs are required to report to Central Manpower Base (CMPB) for their medical screening and initial psychometric testing. This consists of the MAPAS, comprising cognitive ability tests, as well as a PM. The full initial psychometric testing takes about two hours to complete. A combination of MAPAS and PM data allows for a comprehensive assessment of aptitudes, attitudes and attributes that predict training and job performance across vocations. Compared to methods like Structured Interviews that are labour intensive, cognitive ability tests and personality measures are amenable to large scale computerised testing at a single location and are thus highly efficient. PE testing has been computer-based since its inception in 1995. Another example of pre-enlistment testing is the selection for Cyber full-

time National Servicemen (NSF). There are further plans to combine pre-enlistment assessment data from MAPAS with existing assessments from knowledge-based and application-based tests to evaluate the overall validity in predicting training performance.

Post-enlistment assessments support selection decisions for niche vocations with niche and demanding requirements (e.g., commanders, bomb disposal operators and intelligence). Compared to psychometric testing at pre-enlistment, post-enlistment assessments are specifically scoped towards military training and the job environment. This includes peer assessments, where recruits who train in close quarters can observe and appraise each other based on critical job-relevant behaviours, especially in situations not within the view of superiors.<sup>8</sup> These behavioural assessments complement and value-add to pre-enlistment psychometric tests, increasing the overall validity and thus accuracy of decisions and selection. For example, commander selection in the SAF integrates both pre-enlistment psychometric assessments of cognitive ability and post-enlistment assessments of leadership potential collected during Basic Military Training (BMT) (e.g. peer appraisal, instructor assessment and Situational Test) to identify suitable candidates for command school.

Multi-stage assessments for high-stake selections. Niche selections in MINDEF/SAF (e.g., pilot, commando and diver) are often multi-stage, where candidates need to pass an earlier stage of assessment before proceeding to the next stage. Each stage is designed to sieve out candidates who do not make the cut in relation to pre-identified specialised skills and aptitudes. This has helped to focus resources to keep the process cost-effective, yet balance the issue of eliminating candidates too early. For example, pilot candidates are expected to pass a baseline assessment of general intelligence before they can proceed to a more rigorous psychometric selection test battery assessing relevant cognitive and non-cognitive attributes. Successful candidates are then required to pass a selection interview and the requisite medical tests to earn a slot in an Air grading programme, which is the final stage where their flying potential is assessed through flight screening.

Validation of assessment and selection systems is conducted periodically to keep them relevant and valid. An assessment system can be considered valid when there is empirical evidence for its job-relatedness and when it is assessed to be useful for predicting subsequent work behaviour or outcomes.<sup>9</sup> Validation refers to the analyses conducted to obtain evidence of job-relatedness and predictive validity.

## MISCONCEPTIONS

Assessment informs decision-making, not necessarily raise quality numbers. A common misconception with regard to selection is that an assessment system is considered successful only when there is an increase in the quantity of quality candidates. However, it must be noted that constraints such as resource supply and SAF's operational requirements, also greatly impact the output of any selection system. As such, the key benefit that should be considered is the ability to identify an individual's strengths and weaknesses before their enlistment. Prior knowledge of enlistees' strengths in terms of interest, cognitive ability and personality in addition to physical and medical factors based on the vocation requirements allows the organisation to optimise distribution of scarce resources across critical vocations throughout the SAF. Should selection decisions be made purely based on physical and medical factors, vocational decisions may be inadequate and overly focused on certain requirements (i.e., whether candidates can withstand physically demanding conditions). However, it must be noted that most critical vocations also require candidates to withstand psychologically demanding conditions in order to perform well (e.g., act dependably under stress, resilience). Prior knowledge of enlistees' weaknesses gives the organisation a lever to screen out enlistees from unsuitable vocations despite their fulfilment of physical and medical requirements.

Assessments do not impact engagement, but leadership does. Another misconception in selection is the idea that enlistees who meet the KSAA requirements for a vocation will definitely be able to perform well and with commitment. Selection is a necessary but insufficient condition to achieve desired

work behaviours. Literature review and MINDEF/SAF analyses have consistently highlighted the impact of leadership and enlistees' motivation on performance as well as job satisfaction. In other words, selection gives the organisation an advantage, by providing leaders with men who come with the potential and predisposition to learn and perform. However, the positive effect of selection on performance and attitude could be lost through poor leadership and lack of engagement. Selection is not the panacea for addressing poor behaviour and performance outcomes. Selection works best in tandem with good leadership and training to produce competent and committed soldiers who can perform and go the extra mile even in tough situations.

## CURRENT AND FUTURE DEVELOPMENTS

Enhancing testing experience. With the increasing availability of technology for data capturing, and development of assessment IT for more efficient and more engaging testing, MINDEF/SAF will continue to explore and trial new methodologies of assessment (e.g., games-based assessment, situational judgement test) that can potentially improve our assessment and selection decisions. Game-Based Assessments (GBA) have become increasingly popular as they have been touted to make testing more interesting and engaging, thereby improving the testing experience and test performance for candidates. Tech giant, International Business Machines (IBM) and local bank, United Overseas Bank (UOB), have incorporated GBAs as part of their selection battery.<sup>10</sup> GBA's ability to assess non traditional abilities and attributes such as risk-taking and stress reaction also provides an advantage over conventional psychometric assessments. GBAs, being relatively new on the market, are predominantly supported on the back of vendor-led research. As such, MINDEF/SAF is currently exploring GBAs through internal validation studies, with some results from these analyses expected in a year's time.

Expanding use of personality assessment. The use of personality assessment has largely been employed to support selection thus far. Given the evidence of its

validity in predicting performance and learning development, personality assessment can play a greater role in supporting training and leadership development.<sup>11</sup> This is particularly so, given that personality assessment tends to be appealingly affordable, and can be utilised in the absence of prior information and data. Personality assessment allows incumbents to identify their potential strengths, as well as weaknesses that may need to be mitigated in preparation for subsequent postings, or to improve performance in their current role. The use of personality assessment for individual development has become increasingly sought after in MINDEF/SAF. It is now widely accepted that organisations facing increasingly Volatile, Uncertain, Complex and Ambiguous (VUCA) operational environments require diverse work teams in order to respond adaptively and to innovate solutions for unprecedented problems. Personality assessment can thus be extended to team development, enabling team members from diverse backgrounds with varying personalities and worldviews to connect, communicate and collaborate for success. The use of Situational Judgement Tests as an approach to assess specific traits has been trialed and have seen some positive results in predicting job performance. This may allow the assessment of specific attitudes that the vocation is looking for.

Beyond conventional testing. Over the years, assessment and selection for MINDEF/SAF has evolved from pen-and-paper to computer-based testing. The next phase of testing has begun with experimentation in simulator-based testing. Simulator-based training is

effective in replicating realistic situations and job demands, thereby more accurately assessing individuals for their performance on specific job tasks. This has been driven by the need to assess relevant attributes that are fast evolving with the constantly changing operating environment, and that the cost of selection might be high. This approach has also paved the way for the selection of highly skilled vocations in a safe, standardised and more cost-effective manner. This approach requires much reliability and validity testing and the development of strong data architecture and systems to manage and sustain. This is where the Psychologists have been able to value-add to this new and novel methodology for selection.

## CONCLUSION

Schmidt & Hunter commented in their seminal paper *'The Validity and Utility of Selection Methods in Personnel Psychology: Practical and Theoretical Implications of 85 Years of Research Findings,'* that the use of highly valid employee selection measures can result in gains of millions of dollars to organisations.<sup>12</sup> Conversely, 'By using selection methods with low validity, an organisation can lose millions of dollars in reduced production,' which would create a significant competitive disadvantage. However, for public institutions like MINDEF/SAF, the consequences of bad decisions are paramount with life and death implications. Selection and assignment decisions must be supported by assessments that are empirically proven valid.

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## ENDNOTES

1. Jim Collins (born 1958) is an American researcher, author, speaker and consultant focused on the subject of business management and company sustainability and growth. [https://en.wikipedia.org/wiki/James\\_C.\\_Collins](https://en.wikipedia.org/wiki/James_C._Collins)
2. Assignment is different from selection in that the former's objective is to ensure that individuals in a given resource pool are placed in vocations available at the time, whereas the latter's objective is to pick from a given resource pool only those who meet the selection criteria, thus allowing those unselected to be considered for other selection and assignment. In short, the assignment procedure finds a vocation for everyone in the pool whereas selection finds the best candidates for the vocation/ role on hand.
3. The Armed Services Vocational Aptitude Battery (ASVAB) is a battery of 10 tests that measure aptitudes and knowledge relevant for performance in the military. There three versions of ASVAB: computer-adaptive version administered on candidates processed at a Military Entrance Processing Station (MEPS), a paper-and-pencil version at a satellite Military Entrance Test (MET) site and a Student version administered by schools for career exploration purposes. The US military uses the results from the non-Student versions to determine suitability for enlistment and qualification for a military occupational specialty. See [www.military.com](http://www.military.com).
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8. Peer appraisal is a tool often used in the military where others in training or work team can observe and assess abilities, skills and traits (e.g. stress management, interpersonal skills) and counter-productive / toxic behaviours that affect performance. Selection of commanders and special force operators often include peer appraisal
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# SUPPORTING SAF OPERATIONS THROUGH A PSYCHOLOGICAL LENS

By MAJ Nah Jinping, CPT Jack Tan Jie Ze & CPT Justin Ong

*'The stress of war tried men as no other test that they have encountered in civilized life. Like a crucial experiment it exposes the underlying physiological and psychological mechanisms of the human being.'*

Grinker and Spiegel, 1945.<sup>1</sup>

## INTRODUCTION

As Grinker and Spiegel, two American psychiatrists who served in the US Air Force during the Second World War noted, valuable lessons are learnt with blood on the extreme psychological demands and stressors placed on men in times of war.<sup>2</sup> Since then, military psychology has evolved significantly over the years. Psychologists in the SAF provide support in many ways, from organisational development to operational readiness, through consultancy to commanders and applied research relevant to military operations.

In order for our soldiers to be operationally ready, it is imperative to pay equal emphasis—beyond the more tangible and physical aspects such as weapon systems, manpower and logistics—to the less tangible psychological facets.<sup>3</sup> This is critical for military operations as Psychological Readiness (PsyR) enables soldiers to cope with the many stressors during operations or war, and in turn influence their mental capacity and physical capabilities to perform well during such circumstances. The application of psychology in military operations is thus a strategic imperative, and is crucial in the successful planning and execution of military operations.

This essay will first examine the role of our SAF psychologists in bolstering our soldiers' PsyR for operations. Next, the essay will delve into the applications of psychological support in light of the current COVID-19 challenges. Finally, it will discuss how military psychology can improve the way we tackle emerging challenges in the future.

## OUR ROLE AS A PSYCHOLOGIST

From peacetime to war, military psychologists in the SAF engage in the six lines of Psychological Defence

(PsyDef) Tasks to keep our soldiers psychologically ready to carry out a full spectrum of operations. During peacetime training, a greater emphasis is placed on monitoring (PsyMonitoring), assessing (PsyAssessment), and preparing our soldiers psychologically (PsyPrep). In times of operations and war, more attention is then paid to contextualise and prepare our soldiers for their assigned missions (Mission-Specific Psychological Preparation – MSPP), to keep our soldiers resilient against adversaries' information operations (PsyCounterMeasure) and to support our soldiers to sustain and recover from the many environmental stressors experienced during operations and war (PsyRestoration).

## PREPARING OUR SOLDIERS PSYCHOLOGICALLY FOR OPERATIONS IN PEACETIME

During peacetime, psychologists support the units on a wide range of activities that revolve around organisational development, consultancy and applied research with the aim of bolstering unit and soldiers' psychological readiness in preparation for operations.<sup>4</sup> First, initial consultations with commanders or stakeholders would lead to the establishment of mutually agreed problem statements and intervention areas on psychological facets such as leadership and cohesion.<sup>5</sup> Psychologists would then follow a scientist practitioner model and initiate and drive a PsyR oriented, system-based data collection and intervention process.<sup>6</sup>

For the former, the data-driven approach to organisational change calls for the quantitative or qualitative collection of information and perspectives from our soldiers through PsyAssessment and PsyMonitoring.<sup>7</sup> In today's context, this often takes the form of focus group discussions with soldiers or surveys like the Psychological Readiness Questionnaire (PRQ).<sup>8</sup> Through different data points, military psychologists are then able to identify existing strengths of the unit to leverage, determine more extensive insights on areas to

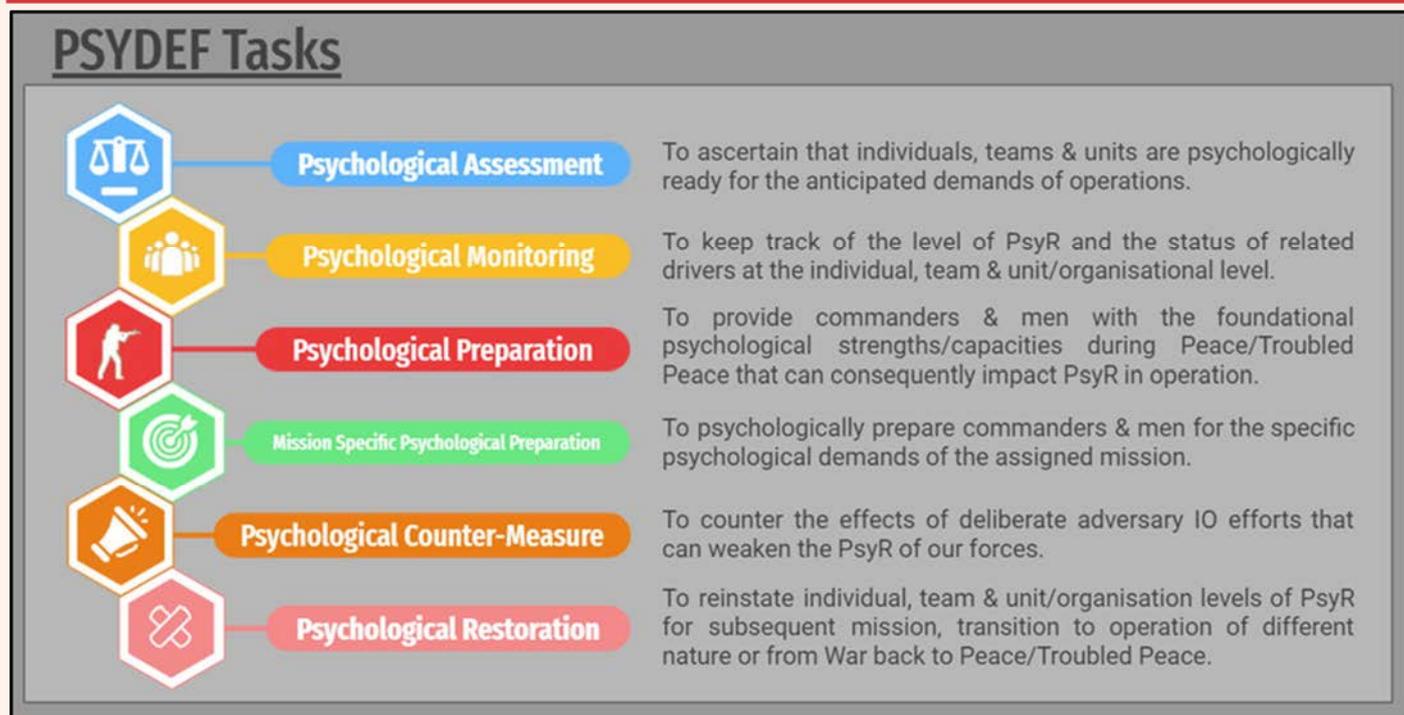


Figure 1: Psychological Defence Tasks.

improve on, uncover misconceptions and misunderstandings on issues such as newly implemented SOPs, or obtain other feedback to help our leaders fine-tune their subsequent decisions or planning considerations.

The subsequent PsyPrep, or intervention process, then continues as a consultative process to build up the individual, team and unit foundational psychological resources through a researched and data validated PsyR Model. Consequently, military psychologists utilise key drivers like cohesion, leadership and logistics that influence soldiers' day-to-day experiences to bolster their PsyR during peacetime to consequently shape their performance and resilience in operations and war.<sup>9</sup> At the higher echelons of command where command decisions are formulated, psychologists also work with command teams to facilitate healthy team dynamics and ensure that the teams are robust in their decision-making and team cognition processes to function adequately and drive mission success during operations and war.<sup>10</sup>

Importantly, during peacetime, PsyPrep—the consultative intervention process—does not prescribe a single technique or solution. Instead, the continuous PsyMonitoring and contextualisation of our soldiers' experiences allow nuancing and frequent feedback to adjust initial planned interventions and to review their effectiveness. PsyPrep during peacetime is thus a fluid and iterative intervention process that is determined in

tandem with the unit training and in collaboration with commanders' emphasis, engagement and communication.<sup>11</sup>

## OPTIMISING OPERATIONS — MISSION-SPECIFIC PSYCHOLOGICAL PREPARATION, COUNTERMEASURES AND RESTORATION

In recent times, our servicemen have supported the nation in various Peacetime Contingency Operations (PTCO) and Humanitarian Assistance and Disaster Relief (HADR) operations. The evolving nature of SAF's peacetime role has also expanded with each operation, from peacekeeping missions in East Timor to aiding our neighbors in natural disasters, from stability operations in Afghanistan to supporting security operations such as the Trump-Kim Summit in 2018, and most recently in responding to the nation's fight against COVID-19.<sup>12</sup> During operations, servicemen would often face tremendous stress and tension from the numerous environmental stressors, ambiguous operational setting and in dealing with the uncertainty of each new and unique operation that could potentially affect their operational readiness.

Prior to operations, psychologists would thus work to intervene, sustain and bolster the PsyR of our servicemen in preparation for their assigned missions (MSPP).<sup>13</sup> Through a close partnership with commanders, psychologists aim to increase the clarity

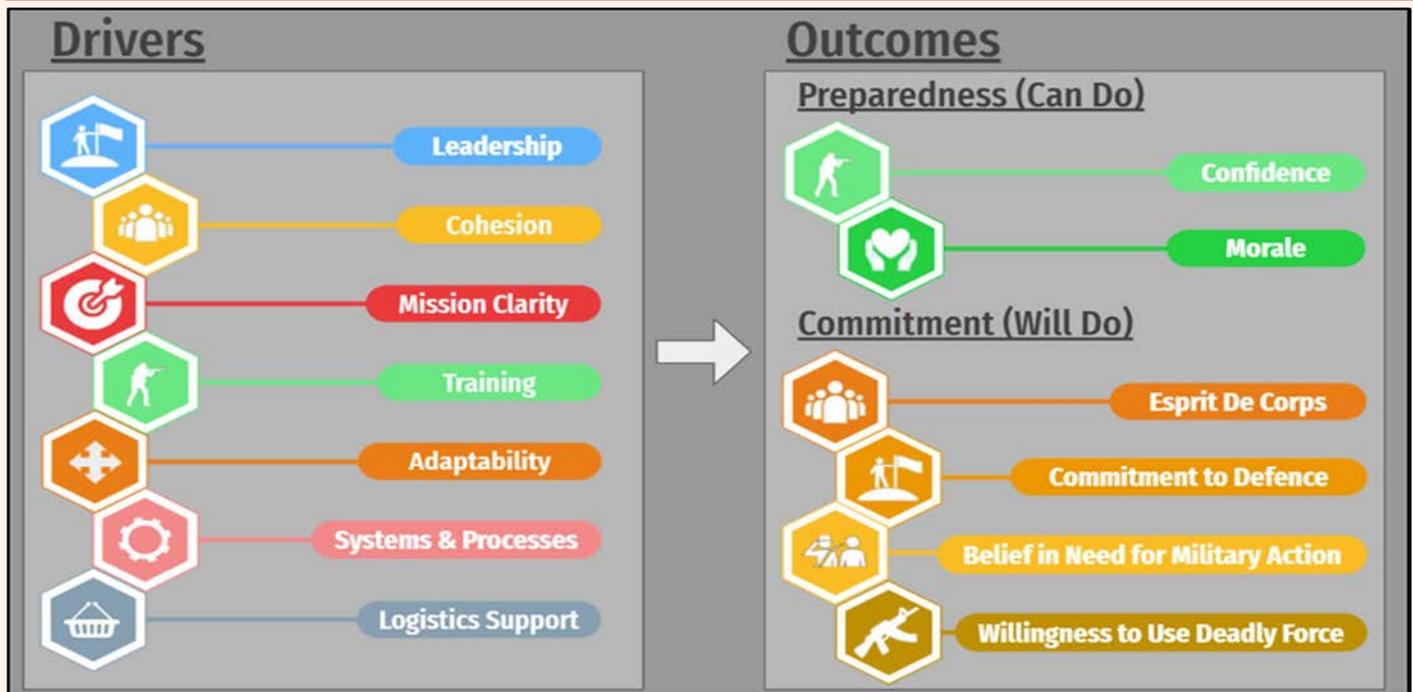


Figure 2: Psychological Readiness Model.

and certainty of various components of the mission to our servicemen. The MSPP thus seeks to contextualise the mission profile, task complexity, environmental stressors and anticipated issues to prepare our servicemen for the specific psychological demands of their assigned missions.<sup>14</sup> For example, when the SAF supported multi-national coalition efforts to restore stability in Afghanistan, the SAF troops underwent significant changes to their work and family in preparation for the deployment. Military psychologists supported the operation through pre-deployment screening and psychological preparation, in-theatre psychological monitoring and post-deployment decompression. In this particular context, the MSPP covered the potential issues of family strain due to separation, psycho-education on physical and psychological threats and stressors that the deployed personnel may face in-theatre, and coping mechanisms and skills such as emotional regulation and managing cognitive biases that may hinder resilience and effective decision-making.<sup>15</sup>

During operations, PsyRestoration also becomes an important pillar of our PsyDef Tasks. Firstly, the exposure of traumatic stressors, such as seeing dead bodies in HADR operations, could affect our soldiers psychologically during and after their mission is completed.<sup>16</sup> Incidents may also occur during such unpredictable circumstances and would have the

potential to create significant distress, and can overwhelm one's usual coping mechanisms in an already hazardous and stressful environment.<sup>17</sup> To sustain and bolster our servicemen's morale and mental well-being during operations, psychologists conduct psychological debriefing, facilitate operational learning and address issues that may potentially erode our servicemen's PsyR. When faced with critical incidents, psychologists would also conduct crisis interventions to mitigate the adverse impacts of the crisis and aid servicemen in their coping process. Importantly, the timely and appropriate management of psychologically affected servicemen after a critical incident will minimise operational downtime and enable our servicemen and the units to continue their deployment.

Beyond MSPP and PsyRestoration, with the proliferation of social media and other mass communication means, our servicemen are often exposed to a wide spectrum of information content today.<sup>18</sup> Information campaigns from potential adversaries advancing certain agendas could expose our servicemen to fabricated information, polarised content or emotionally-driven propaganda.<sup>19</sup> During operations, in a highly ambiguous and volatile environment, this leaves our servicemen even more susceptible and vulnerable to the effects of misinformation and disinformation.<sup>20</sup> Studies have shown that humans distinguish between offensive and defensive coalitional

aggression, and that informational cues—or how you frame such operations—affected their willingness to participate and their emotional responses toward others.<sup>21</sup> Psychologists thus play an important role in assisting commanders to frame campaigns appropriately, engage and communicate with deployed servicemen adequately as well as providing current assessment of our soldiers' PsyR from time to time. In turn, this will bolster and sustain our servicemen's PsyR through the stressful and dynamic circumstances that come with each operation.

## The Fight Against COVID-19

As the SAF continues to answer the nation's call in various crises, our servicemen's mobilisation extends across an expanding range of operations with increasingly diverse operating circumstances.<sup>22</sup> At the same time, psychologists' roles in support of operations are continuously redefined.

Throughout the pandemic, the SAF stood up several task forces to support a wide range of operations, such as logistics, contact tracing, supporting migrant worker dormitory operators and ensuring workers' welfare, providing emergency housing and medical operations.<sup>23</sup> In order to maintain operational readiness and training standards, the SAF also put in place safe management measures and health protocols to ensure the continuity of essential operations. As in service personnel responded to the nation's call and adapted their operations, inevitably, the drastic changes wrought by the COVID-19 situation would have caused a strain on their well-being.<sup>24</sup> Just like health care workers, our personnel faced tremendous stress as they took on unfamiliar roles.<sup>25</sup> It was paramount that they received adequate support to manage their new and increasing work demands, to maintain their psychological well-being.

As the pandemic brought about a wave of digitalisation and changes in work processes in our society, we also seized the opportunity to transform the way we provided our support. With the onset of nation wide safe management measures, on-line surveys were conducted to monitor the general well-being and psychological readiness of our personnel as the situation developed or with new measures implemented throughout the pandemic. These were

supported by platforms such as FormSG to capture our servicemen's sentiments efficiently and remotely. These data allowed us to analyse and understand how personnel across the organisation varied in terms of their well-being and had been coping through the pandemic. Insights such as the risk factors that servicemen were exposed to, were shared with commanders and personnel departments to improve processes and policies, and develop engagement initiatives and messages to address needs and concerns.

During the Circuit Breaker period, servicemen from critical operational units had to undergo extended periods of quarantine and isolation for force preservation. Through surveys, soldiers were able to provide feedback about stress arising from separation from family and prolonged duration at work. Similarly with the task forces, feedback related to prolonged working hours, the uncertainty of deployment period, and concerns over the exposure to the virus were also obtained.

As studies on military personnel have shown, prolonged periods of stress may lead to increased fatigue, decreased vigour and may influence soldiers' ability to process crucial information and take on cognitive-demanding tasks.<sup>26</sup> During the virus outbreak, the uncertainty and ambiguity of information—often delayed or conflicting—also led to increased psychological stress on individuals.<sup>27</sup> Thus, reducing uncertainty became a critical component in bolstering psychological wellbeing and preventing negative psychological outcomes such as acute stress disorders and depressive symptoms.<sup>28</sup> As we began to understand the epidemiology of the virus, commanders actively engaged their soldiers with updated information on the virus and protective measures to enable the continuity of activities and work. These efforts, through various forms such as bite-sized infographics and the utilisation of social media platforms, thus became examples of how our leadership adapted and improved their communication and engagement. As we move forward from an unprecedented year of disruptions, our innovation in communication processes signal an important milestone not just in adapting to COVID-19 but as a turning point to reimagine leadership engagement and development.

For our deployed personnel in COVID-19 operations and servicemen adapting to new processes to carry out essential activities, these stressors are further amplified with increased exposure to the infection, while facing high cognitive workload, built-up fatigue, occupational burnout and adjustment concerns in the rapidly changing work environment.<sup>29</sup> Additional psychological support was thus provided to the COVID-19 Task Forces and Critical Operational units, given the potential strains posed by the inherent risks of exposure, extended social isolation, ambiguous operational situation, and requirement to work in inter-agency teams. These translated in the form of MSPP, regular sensing of morale through online surveys, focus-group interviews and interviews by psychologists during the operations, and post-deployment decompression. As past studies and experiences from previous SAF operations have shown, mental preparation is a key success factor for performance.<sup>30</sup> Stress management, emotional regulation and coping mechanisms taught and contextualised during these sessions bolstered soldiers' psychological resilience for their mission and enabled them to cope better after deployment.<sup>31</sup>

Besides these, attention was also paid to engender mission clarity and focus through command emphasis and engagement. When servicemen are committed to their cause, they are more likely to perform better in prolonged and stressful conditions and are less susceptible to emotional distress, and other depressive symptoms.<sup>32</sup> Thus, by working with commanders in communication efforts such as defining common goals, building shared identity, and empowering individuals' beliefs and sense of purpose to their work, collective resilience was strengthened in each unit and task force.<sup>33</sup> Our continuous effort to engage, communicate and address concerns of our servicemen paid off as the units and task forces emerged stronger through the operations with remarkably higher levels of psychological readiness.

Learning from our psychological support experiences during COVID-19, it is vital for us to continue building and maintaining our servicemen' psychological readiness and resilience to act as an intangible asset towards mission success when crisis strikes. As seen during the pandemic, social interactions and staying connected provided an opportunity to

strengthen our collective identity and sense of purpose. Despite a year without cohesion activities, unit cohesiveness was found to be exceptionally high, post COVID-19. Psychological readiness and resilience must, thus not be seen as an individual activity but as a collective effort.

## HARD TRUTHS FOR THE FUTURE

Hard Truth on Stress and Well-Being. Having experienced this unprecedented national crisis, a few hard truths about psychological readiness become evident. Firstly, stress is part and parcel of military life, but can also be exacerbated greatly by conditions beyond the typical realms of the military. As the military is a fast-paced environment where personnel are required to perform under stressful conditions, burnout rates are typically high.<sup>34</sup> Stress can come from many sources including hostile situations, harsh environments, the daily demands of work, as well as long working hours and family separation, which are especially prevalent during deployment.<sup>35</sup> More recently, the COVID-19 situation has also given us a glimpse of the population-wide increase in psychological distress that can result when society at large is undergoing a crisis.<sup>36</sup> To the extent that the military is a reflection of society, spillover effects can be expected. Hence, in some ways, there may be parallels to the psychological impact that grey zone threats could have on us.

Among the most challenging tasks that a unit commander needs to be ready for is balancing operational requirements with the well-being of a unit, which psychologists play a crucial role in supporting. At an individual level, how our servicemen handle psychological stressors and demands are important. The more we inculcate healthy coping styles and foster positive mental health habits during peacetime, the more likely personnel will apply them during critical periods, because coping mechanisms that become habitual are more likely to be practised. At a unit, team and even buddy level, cohesion is widely recognised as having an overwhelming influence on well-being and performance.<sup>37</sup> As such, psychologists assist commanders in regular diagnosis and development of unit cohesion, facilitating team-building programmes and providing team effectiveness feedback.

At the organisational level, policies must be able to address varying stressors and demands through a peace-Period of Tension (POT)-wartime continuum. Long term exposure to great stressors can cause emotional exhaustion and in turn negatively affect organisational commitment and Early Release rates.<sup>38</sup> As such, organisational psychologists have been working with various populations to address issues affecting the sustainability of our people, including systems to manage workload, facilitating family engagement, as well as more comprehensive mental health support.

Hard Truth on Resilience. Beyond coping with stressors, the unprecedented national crisis has also revealed hard truths about the importance of building psychological strength. The volatile security environment and the prominence of non-kinetic domains have made it increasingly pertinent for the SAF to equip our people with psychological strengths to thrive in a wider operational spectrum. However, such psychological strengths must be built up systematically over time. As with improvements in physical strength, there is a need to embark on progressive and disciplined training, as the build-up psychological resilience to deal with and grow from stressors requires sustained effort.

Experiences from foreign militaries such as the United States (US) and Australia have shown that when it comes to resilience training, properly sequenced, graduated and contextualised training is key to effective training outcomes.<sup>39</sup> Hence, there is a need to ensure that resilience training is embedded into the various stages of a serviceman's Route of Advancement (ROA). This would include allowing resilience skills to be continually practised and reinforced during courses and operational unit milestones. The SAF has rolled out resilience training to all BMT and most *ab-initio* courses, while continuous refinement and implementation of resilience training are underway.

Hard Truth on Building Psychological Readiness. Apart from Resilience, another critical component of an effective soldier is the readiness to engage in operations and combat, and to deal with the associated stressors. Referencing Grinker and Spiegel's quote, it is important to note that operational stress accounts for almost half of all combat casualties and is a major cause of attrition of military forces.<sup>40</sup> Even soldiers who are well-trained

and well-equipped would not be able to demonstrate their full potential if they are not in the right state of mind. Thus, the challenge is then for commanders to be able to manage psychological readiness well. However, they may lack the relevant expertise and tools to do so.

In order to support commanders in building and maintaining psychological readiness, a centralised planning, decentralised execution model has been adopted. With this, a central group of psychologists develop toolkits and generate broad insights, while commanders work with a team of assigned or deployed operational psychologists to translate them into unit-specific measures and interventions. The Australian Defence Force (ADF) calls these teams from the 1<sup>st</sup> Psychology Unit 'capability bricks', highlighting their fundamental importance yet modular nature. With ready toolkits available and armed with specific knowledge and experience, these teams can be more responsive in customising support according to units' needs. This is done through psychological screening, psychological readiness monitoring, performance maximisation, psychological health monitoring and team effectiveness building, among others.

Hard Truth on Manpower Resources. Lastly, from a macro perspective, even as SAF operations become more complex in an increasingly volatile security environment, we must contend with a shrinking manpower resource pool due to shifting demographics and competing demands for specialised skills on a national level. As such, there is a growing need for psychology to help in enhancing selection, performance and retention. As a baseline, continued validation and fine-tuning of the assessment and selection system are required for the system to remain relevant amidst the changing nature of jobs. Beyond that, militaries also need to tap on advances in psychology and technology to achieve better optimisation of personnel performance, through areas such as training, motivation and human factors.

Foreign militaries have also recognised the importance of sustained efforts to optimise the use of limited manpower resources. The US has adapted multidimensional forced choice testing in their Tailored Adaptive Personality Assessment System for new recruits, and has also undertaken holistic efforts to study and reduce attrition of service personnel,

especially in high-risk vocations.<sup>41</sup> Similarly, the SAF has embarked on improving assessment and selection at every stage, ranging from the use of the Vocation Suitability Score together with other indicators to better allocate full-time National Servicemen to suitable roles, to greater proliferation of digital technology for assessments to improve motivation and realism. These are done in conjunction with attrition studies at various courses to better understand why some are more likely to succeed than others, deployment of tools to address fatigue management in prolonged operations, as well as training in cognitive domains that will put our people in better stead for grey zone operations. There are diverse lines of effort requiring expertise in many new areas, but ultimately, they aim to improve each individual's ability to contribute, and maximise our limited manpower resources.

## CONCLUSION

Recent developments including the COVID-19 situation have illustrated how the future battlefield will be more dynamic, and how it will place greater psychological stressors on our units and individual servicemen. Hence, while the mission of military psychologists remains unchanged, the means of achieving it must continue to evolve. This essay has highlighted some of the paradigm shifts that psychology support for operations is undergoing, including the systematic building of psychological strengths during peacetime, digitalisation and modularity of psychological support, as well as a renewed emphasis on maximising limited manpower resources. Moving ahead, these will be critical in ensuring that our people are psychologically equipped, and at their peak mental condition for mission success in any operation.

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# LEADERSHIP DEVELOPMENT & ORGANISATION DEVELOPMENT IN MINDEF/SAF

By Mr Desmond Chua Khim Teck, Mr Tay Jing Xuan & Mr Heng Choon Peng

*'The guns we provide the SAF are as effective as the soldiers who fire them. The soldiers are as effective as the officers (leaders) who lead them.'*

Dr Goh Keng Swee, 1981<sup>1</sup>

## INTRODUCTION

Since the founding of Singapore, our national leaders have recognised the importance of a strong MINDEF/SAF in the defence of our nation. The strength of MINDEF/SAF is, in turn, dependent on the ability of our leaders to lead their men, develop their teams and improve the organisation. Leaders also have the responsibility of ensuring that those they lead are engaged, motivated and committed, so that MINDEF/SAF as a whole continues to strive for organisational excellence. As such, MINDEF/SAF has always paid close attention to the development of our leaders, to ensure that the best people fill leadership positions across all levels in the organisation.<sup>2</sup>

Modern military history has highlighted numerous stories of how leaders have been instrumental to campaign success or failures. One such example is General George S. Patton, who in the Battle of the Bulge in World War II (WWII), accomplished what other leaders thought was impossible by activating three divisions from the Third Army to push back against the enemy's advance.<sup>3</sup> In so doing, he turned the tide of the battle, which ultimately led to the defeat of Nazi Germany. In Singapore's context, the first Chief of Defence Force, Lieutenant General (Retired) [LG (Ret)] Winston Choo was credited with shaping 'the culture and values of the Singapore Armed Forces—not by issuing orders alone, but by living and breathing these values.'<sup>4</sup> This is further supported by organisational research, where leadership is 'increasingly recognised as a critical factor in all forms of organisation: formal and informal, business and public, civilian and military, historical and contemporary, the arts as well as the

sciences, and 'for profit', 'not for profit' and voluntary'.<sup>5</sup> In other words, good leadership is vital for all organisations to thrive.

What constitutes good leadership is context dependent, since 'the domains in which leadership is practised are so varied... what it takes to be a successful leader or to bring about effective leadership may vary considerably across contexts.'<sup>6</sup> Former British Prime Minister, Winston Churchill is a good example of how his leadership may be relevant for wartime, but less so in peacetime. As scientist-practitioners, Industrial/Organisational (I/O) psychologists are well positioned to understand the unique context of the organisation, and to bridge the gap between research and application to impact leadership and organisational development.

## MINDEF/SAF LEADERSHIP AND ORGANISATIONAL DEVELOPMENT EFFORTS

Due to the critical role that leaders play, MINDEF/SAF has invested substantially in various Leadership and Organisational Development (L&OD) efforts over the years. MINDEF/SAF's L&OD vision is to develop:

1. **Trusted & Effective Leaders**, who make decisions and act effectively in a Volatile, Uncertain, Complex, and Ambiguous (VUCA) environment;
2. **Cohesive & High-Performing Teams**, characterised by accelerated team alignment, teamwork and team learning; and
3. **A Steadfast MINDEF/SAF**, led by Organisational Stewards who continually improve the organisation. This can be achieved through engaging our people, and fostering a culture of organisational resilience and innovation.

## TRUSTED & EFFECTIVE LEADERS

Leadership Development is a continuous process in MINDEF/SAF. The organisation has a systematic

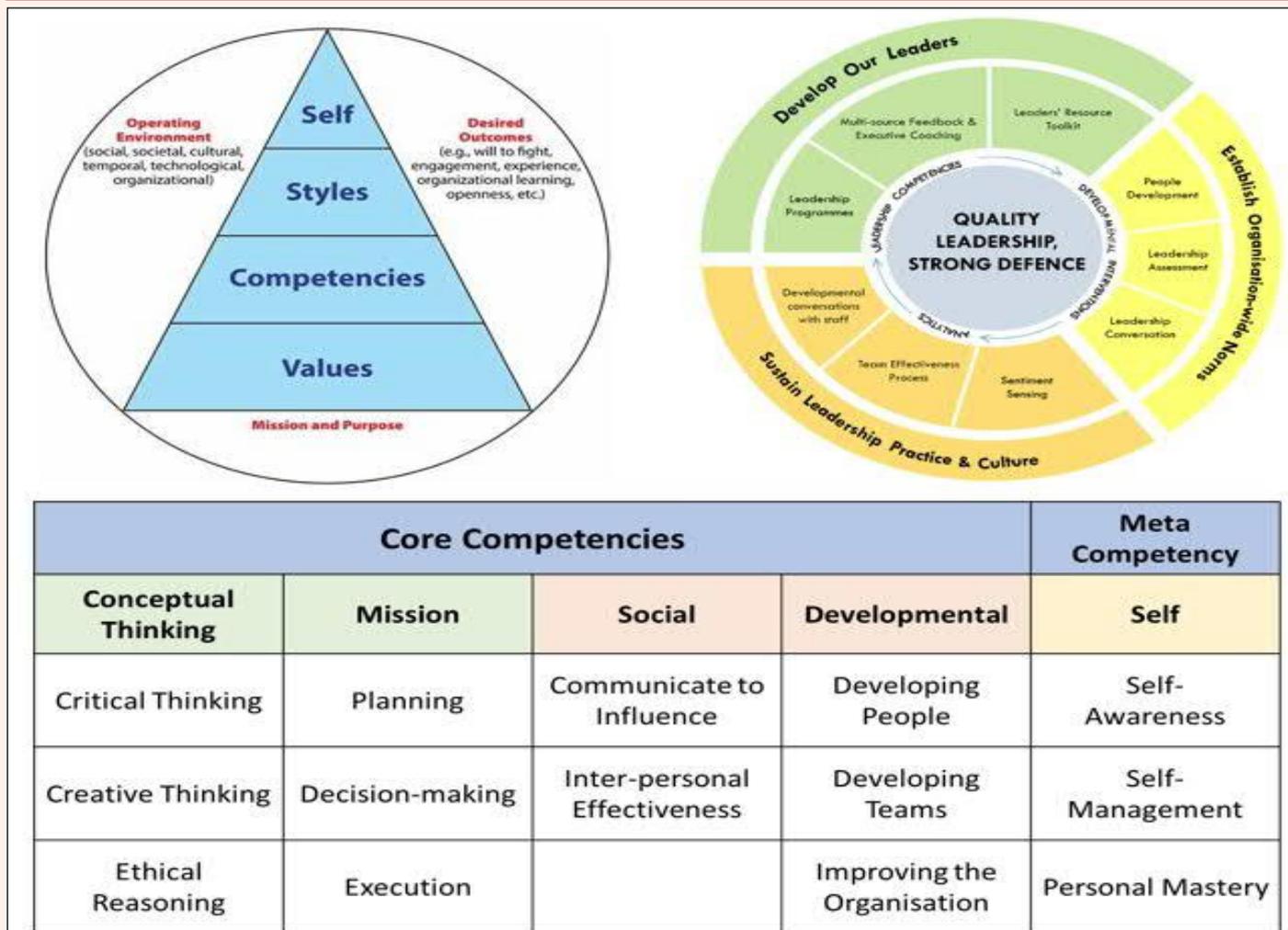


Figure 1: Examples of frameworks developed over the years.

process to develop our leaders from junior to senior levels. Psychologists support the development of our leaders across their entire careers.

### Development of Frameworks

In the early years, our system of leadership development took reference from the training systems of other countries. Over time, MINDEF/SAF recognised the need for our own leadership development structure and process, to meet our unique context such as having a conscript army.

MINDEF/SAF psychologists were an integral part of that development process. They conducted extensive literature review to identify relevant research on leadership theories (e.g. transformational leadership and situational leadership) and contextualised them for the organisation. For instance, the SAF 24/7 Leadership Framework and the Leadership Competency Model (LCM) were developed after multiple rounds of Focus Group Discussions (FGDs) and surveys with different stakeholders. These models eventually became approved doctrines for leadership development in the

SAF, which formed the foundation for the design of training curricula. More recently, psychologists from Centre of Leadership Development (CLD) and DPD have also worked together with stakeholders to produce MINDEF's Leadership Development Framework. Psychologists continue to refine our existing doctrines, as well as develop new doctrines (e.g. crisis leadership) to meet the demands of the future.

Having such leadership frameworks is essential. They provide trainers with a common frame to develop relevant course content for leadership training. For instance, curriculum developers from the year-long SAF Leadership & Organisation Development course utilise the 24/7 and LCM to develop activities that help participants internalise key leadership behaviours.<sup>7</sup>

### Providing Feedback for Leaders' Self Development

The receptivity towards feedback is important for leaders. Research shows that feedback, combined with executive coaching, improves the leader's self-awareness and self-management, which consequently

enhances leadership effectiveness.<sup>8</sup> Psychologists were involved in the creation of various individual feedback tools and processes that support leadership development in MINDEF/SAF. This includes the 360° Multi-Source Leadership Feedback (MSLF) and the INSIGHT360 tool for SAF and MINDEF, respectively. Each leader is rated by their superiors, peers, subordinates and themselves based on a list of leadership behaviours. Through this exercise, leaders gain greater awareness of their leadership strengths and weaknesses from different perspectives.

Within the SAF, the MSLF is currently deployed to support Officer Commanding (OC), Commanding Officer (CO), and Regimental Sergeant Major (RSM) appointments. It is also incorporated into various Route of Advancement (ROA) programmes (e.g. Command Staff Course, Joint Senior Leadership Course, and Senior Commanders' Programme). Within MINDEF, INSIGHT360 is deployed on alternate years for middle management and senior management leaders, to support their development.

## COHESIVE & HIGH-PERFORMING TEAMS

In an integrated organisation like MINDEF/SAF, it is increasingly important for our leaders to be able to develop and lead cohesive and high-performing teams.

Psychologists have been involved in the development of Leadership Development (LD) processes and tools to enhance the effectiveness of teams. For instance, the Command Effectiveness Process (CEP) and Team Effectiveness Process (TEP) are avenues to develop effective and cohesive teams in the SAF and MINDEF respectively. Both programmes provide the opportunity for leaders to gather with their teams, to align themselves to a common objective by formulating their Vision, Roles, Rules, Relationships (V3R).

Another way psychologists have contributed to the development of teams in SAF is the design and implementation of the A-team survey and Psychological Readiness Questionnaire (PRQ). The A-team survey provides COs with a current snapshot of the level of team cognition and team cohesion in their units. The CO can make use of the A-team report to discuss with their executive coaches to identify key areas to strengthen their command teams. This is complemented by the PRQ, which provides a sensing of various factors that

affect the readiness of their unit (e.g. cohesion and perceptions about key appointment holders). Using the PRQ findings, psychologists provide COs with timely feedback and work with them to develop interventions that enhance unit climate and functioning, thus supporting them to lead their units more effectively. PRQ findings on the key appointment holders can also be provided as feedback for each individual.

## STEADFAST MINDEF/SAF

With rapid technological and societal changes, MINDEF/SAF has to continually transform to meet these challenges. At the core of the organisation are its people. Hence, it is important to ensure that they continue to remain engaged and committed to the organisation's cause.

Research has shown that highly engaged individuals are more likely to perform better and engage in positive organisational behaviours at work.<sup>9</sup> Engagement is also related to a reduction in workplace accidents and injuries.<sup>10</sup> In short, having highly engaged individuals will result in positive outcomes across the organisation. While various factors contribute to employee engagement, leaders play a significant role in influencing engagement in their teams and organisation.<sup>11</sup>

Psychologists support leaders through regular sensing of key issues that may affect employee engagement in the organisation. This includes conducting organisational-level surveys such as the Organisational Climate Survey (OCS). The OCS is administered to all permanent staff in MINDEF/SAF biennially, and gathers feedback on a wide variety of factors related to employee engagement. Regularly monitoring employees' sentiments in these areas allows for timely interventions to address their needs, to keep employees motivated and committed. Psychologists also regularly conduct statistical analysis to validate the engagement model, so that it remains relevant to the organisation.

Following each OCS, entity heads receive their report from psychologists detailing the findings for their unit(s). Leaders are encouraged to discuss the issues surfaced through the report with their leadership team, and to address the issues within their sphere of



Picture 1: Leadership & Organisational Development Make-a-thon in 2018.

influence. This may pertain to areas such as the amount of resources provided to staff to accomplish their tasks, or the relationships within the unit.

The findings from OCS also inform organisational changes across MINDEF/SAF. Previous OCS findings highlighted a need to drive a culture of innovation, reduce red tape and enhance the professional development of DXOs. In driving a culture of innovation, psychologists are involved in the Transformation and Innovation Steering Committee and MINDEF Transformation Working Group which has overseen initiatives to address these issues. Notably, psychologists were closely involved in the Defence Executive Officer (DXO) review to examine development opportunities for DXOs.

CLD and DPD psychologists collaborated to conduct a series of FGDs to identify developmental gaps among the DXO population. Following this, the L&OD Make-a-thon was conducted with leaders within MINDEF/SAF as well as from external agencies (e.g., Public Service Division), to brainstorm solutions to address the gaps identified. The DXO review was also initiated to review competency frameworks among DXO job families, as well as to guide the professional development of DXOs in order to meet their career aspirations.

In 2021, the OCS was also revised to incorporate questions from the Public Service Employee Engagement Survey (PS EES).<sup>12</sup> This allows MINDEF/SAF to benchmark our engagement-related findings with other public agencies. In doing so, MINDEF/SAF will be better able to identify areas where the organisation may currently fall short, and make changes in order to maintain its competitive edge as an employer of choice. In addition, shorter and more regular surveys were introduced to allow the organisation to keep a finger on the pulse of employee sentiments on key issues throughout the year.

## Future possibilities

As the worldwide COVID-19 pandemic has made evident, it is imperative that our leaders can lead effectively in different circumstances. Research has shown that it is more challenging to lead virtual teams than traditional teams.<sup>13</sup> Specifically, it is more difficult to develop relationships in virtual settings, which requires more deliberate attention from leaders.<sup>14</sup>

L&OD will remain relevant as the organisation seeks to transform itself to meet future challenges. The needs of future generations entering the workforce will differ from previous generations. For example, research found that work-life balance drove career choices for

three out of four Millennials.<sup>15</sup> In comparison, Baby Boomers view their job as an integral part of their identity and hence place more emphasis on their work.<sup>16</sup> Hence, given the diversity in the workplace, leaders need to recognise that there is no one-size-fits-all solution to effective leadership.<sup>17</sup>

Psychology will continue to support the L&OD efforts in MINDEF/SAF. Psychologists can contribute

through conducting research on the changing needs across generations, and equipping our leaders with the necessary skills to meet those needs. By keeping abreast of the latest research and ensuring that psychological models are validated, psychologists will be well positioned to enhance organisational effectiveness, thus contributing to the success of the mission of MINDEF/SAF.

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# PSYCHOLOGICAL RESILIENCE AND OTHER FACTORS THAT MAXIMISE PERFORMANCE IN THE SAF

By Dr Mark Khei

*The most beautiful people we have known are those who have known defeat, known suffering, known struggle, and have found their way out of those depths.*

Elisabeth Kubler-Ross<sup>1</sup>

## INTRODUCTION

Imagine that you are an avid rafter, and are planning to take on some challenging rapids down a river to improve your performance. Along with slow water and shallows, your map shows that you will encounter unavoidable turns and rapids. How would you ensure that you can safely navigate across the rough waters and handle any unexpected challenges that may come your way? Perhaps you would rely on the company of your trusted friends or enlist the support of more experienced rafters as you plan your route. Maybe you will gear up better or consider using a bigger raft. Regardless, you will definitely take time to acquire the right tools, and have the needed support in place to conquer what is ahead. One thing for sure is that after making it through the trials of your river adventure, you will emerge a more confident and dauntless rafter.

## THE INOCULATION CONCEPT OF RESILIENCE

Just like rafting, everyone will experience twists and turns in life as they navigate through their everyday tasks. Some will cope better than others, yet people generally adapt well over time to stressful situations thanks, in part, to resilience.

Resilience is defined as *the ability to overcome stress, 'bounce back' from or grow in the face of adversities, which eventually decreases one's vulnerability to future stressors.*<sup>2</sup> The current focus in research on stress and resilience is on understanding

the protective factors (e.g., personal resources, social support) that promote resilience among people in times of stress.<sup>3</sup> For instance, Tugade and Fredrickson advocated that people who are able to find positive elements in negative events (i.e., silver lining) may be better at adapting and adjusting to, as well as coping with, life's challenges. Besides the element of bouncing back from difficult situations, resilience can also lead to profound personal growth.<sup>4</sup>

The good news is that one's resilience level is not set in stone. Psychological resilience is not a personality trait or individual factor that only some people possess. On the contrary, resilience is formed through the basic psychological components of behaviours, thoughts and actions, which anyone can learn and develop through time. The ability to learn resilience is one reason why research has shown that resilience is an ordinary, not extraordinary, phenomenon. Besides individual efforts towards resilience, the environment and external sources of support are important, too. Take for example military missions and activities when commanders are constantly there to encourage their men during each training—this builds cohesion and esprit de corps, which in turn builds up the psychological resilience in the whole unit.

While resilience is a valuable trait, the process of gaining resilience may not be a smooth-sailing one. The road to developing resilience likely involves experiencing considerable amounts of emotional distress. Often, stress is portrayed as something that causes a negative impact. However, research has shown that exposure to stress can promote resilience to subsequent stressful episodes later in life. This phenomenon has been referred to as 'stress inoculation', which is similar to the resilience to a pathology that is generated through vaccination by a weakened pathogen. Just as vaccination using a dead or weakened pathogen enables the body to build up



Picture 1: Cohesion and esprit de corps among teams contribute to psychological resilience.

resistance to a particular virus, thus mounting a long lasting immune response, exposure to a moderate amount of stress enables us to learn to cope more effectively with future stressors.

This concept of inoculation can be applied to a resilience-building programme. Firstly, a basic system of psychoeducation is offered, followed by exposure of personnel to stressors for learning (through training design, embedding stressors in training), and finally teaching our personnel how to deal with them in a systematic manner through post action reviews identifying initial stressors, finding solutions to those stressors, and trying these solutions out in actuality. The desired outcome of this approach is to increase an individual's resilience to weather trials and tribulations. By using the strategies and coping techniques learned through this process, individuals can also nurture their character and grow through these difficulties, thus being inoculated. Indeed, research has shown that such an approach is effective in the military as well.<sup>5</sup> When common military adversities and stressors were identified, and military personnel were exposed to these adversities and stressors during training in a safe setting, this improved their outcomes for survival, evasion, resistance and extraction. Resilience training in the SAF also takes such an approach across all Services—i.e., we build up internal capacity and

external sources of support, inoculate people to known military stressors, and then expose them to setback and failure in a controlled environment.<sup>6</sup>

## RESILIENCE IN THE MILITARY

Given the positive outcomes of resilience in the military, it is not surprising that resilience has been an important topic in military psychology since the 1970s. This is especially so given the unique setting experienced by military personnel, of an environment that is Volatile, Uncertain, Complex and Ambiguous (VUCA).<sup>7</sup> On top of this challenge, military commanders also have to juggle many types of combat/ops stressors. For example, the range of things that all military personnel need to do include the day-to-day task of aiding their men to deal with the rigorous training requirements under specific time pressures, while at the same time ensuring that all is done to upkeep the operational readiness of their people and units. The psychological readiness and resilience of our soldiers, airmen and sailors is often a key success factor in the SAF's mission. Having a high level of psychological readiness ensures our people are ready to perform their call of duty, and being resilient ensures that they remain steady, committed, and in control despite stresses or setbacks. Individual resilience thus forms the foundation of military performance and it is important to embed the efforts to build individual resilience within



Picture 2: Besides developing a strong body through rigorous training, it is important to develop a strong mind and strong heart to have soldiers who are healthy in all domains.

our training systems. Expanding from the rafting example shared in the opening, regardless of the ‘toughness’ experienced in our military trainings, as long as the right tools and appraisal methods are used, the commanders will be able to instill a high sense of self efficacy (i.e., the perception of knowing we have the right tools to perform well) and build up individual resilience over time through this positive feedback loop. While training takes on a unique and different approach across the Services, one commonality exists—all use the ‘Inoculation Technique’ to build resilience for performance enhancement.

In the Army, three key pillars for soldier performance throughout the 2+10 years NS continuum have been identified, namely (1) Strong Body to develop physically fit soldiers; (2) Strong Mind to develop resilient and adaptive soldiers capable of operating effectively in challenging combat environments; and (3) Strong Heart to engender greater Commitment to Defence (C2D) and Commitment to National Service (C2NS). The establishment of the Centre of Excellence for Soldier Performance (CESP) under HQ 9 Div/Inf provided the Army with a dedicated setup that uses a multi-disciplinary approach to drive the Army’s ‘Soldier Strong’ Campaign. This integrated approach is beneficial, because research has shown that there is a strong correlation between mental and physical health.<sup>8</sup> Hence, the healthier we are in one domain, the stronger

we also are in another domain, and vice versa. How then is the resilience inoculation concept applied for the Army? Commanders and instructors play a critical role in the building of resilience in our soldiers. As we know, resilience is *the ability to overcome stress, ‘bounce back’ from or grow in the face of adversities, which eventually decreases one’s vulnerability to future stressors*. As such, our psychologists place great emphasis in preparing our commanders in BMTC and Command Schools to train and lead their trainees. They conduct lectures and workshops, for the purpose of educating instructors on the common stressors faced by trainees and the strategies in handling them. Hence, when their trainees encounter these psychological stressors in their training, Commanders and instructors would know how to aid the trainees in identifying the right solutions, and subsequently in mentally retrieving these solutions for application in similar situations. Psychologists also help Commanders appreciate the science of resilience building among soldiers and teams. Behind the scenes, the scientific knowledge in the building of resilience for performance enhancement are then translated into lesson plans that Commanders and instructors would implement to develop and grow their soldiers’ resilience.

In the Republic of Singapore Airforce (RSAF), *Adaptiveness, Innovativeness and Resilience (AIR)* are three key desired characteristics identified for RSAF

personnel to operate effectively across the full spectrum of operations. Resilience training in the RSAF is conducted by psychologists and trainers in a systematic and structured manner. Specifically, the AIR programme is embedded in the ab initio training curriculum, and leverages on activities tailored for the respective vocations. There are three phases in the AIR programme: (a) *Awareness*, where RSAF personnel are taught the theories behind fundamental AIR competencies, and equipped with key strategies for facing challenging situations; (b) *Application*, where RSAF personnel practise the skills they have learnt through self-reflection, facilitated discussions, and coaching; and (c) *Action*, where the respective vocational training uses scenario-based training to provide opportunities to apply the skills learnt. This is followed by deliberate and structured debriefs and coaching of their AIR competencies by instructors. Similar to the Army, the RSAF also uses the same resilience inoculation technique to enhance performance of their personnel.

The resilience training in the Republic of Singapore Navy (RSN) currently takes place for RSN trainees in their Basic Specialisation Course Training (BSC1), which is similar to the Army's Basic Military Training Centre. Resilience 'top-up' training is also conducted for all personnel who are deployed for high tempo exercises. The RSN has identified three main principles, which also encompass the inoculation concept: (1) Leverage on existing training systems to harness tacit knowledge; (2) Centralised planning, Decentralised execution; (3) Measure and Improve. As such, the RSN has infused resilience training into the existing curriculum, to ensure that apart from the dedicated workshop teaching resilience skills, they have ample opportunities to do guided practice at work through habituation (e.g. combat breathing during tactical training), and to utilise these skills in challenging scenarios through inoculation (e.g. mental rehearsal prior to emergency stations drills). Feedback from RSN personnel is then obtained and used to improve the instruction for future batches.

## OTHER WAYS OF IMPROVING PERFORMANCE IN OPERATORS

Besides bolstering the resilience of our people, there are also other ways to improve performance.

Broadly speaking, they fall into two areas: (i) physical and (ii) behavioural aspects.

First, physical aspects that cause cognitive load and stress on an individual have been studied in various settings. This field of study is called Engineering Psychology, where it is an applied subfield that focuses on improving and adapting technology, equipment and work environments to enhance human behavior and capabilities. Psychologists will study the ergonomics and features of say, a piece of equipment and its interaction with our human cognition. One of the earliest examples happened in World War I (WWI), when psychologists realised that to minimise accidents, switches in a tank should correspond to the physical world, i.e., left switch means things that occur on the left field of vision, and right switch for the right field of vision.

Environmental stressors, such as heat or sound, can cause impairment in military task performance, particularly in cognitive domains such as vigilance, judgement and executive functioning. Hence, personal equipment that addresses these 'environmental stressors' are exceptionally helpful in enhancing an operator's performance. One example comes from the Soldier Systems Integration Lab in the Army. A chest piece was created that reduces the amount of heat trapped in the main body region. With a significant reduction of heat, infantry troopers will experience less stress from their environment and keep their bodies cooler than usual. A similar device is also used in the Air Force, whereby heat can easily be dissipated from the chest region during flights.

Second, behavioural aspects such as proper exercises, cognitive training, and mindfulness are all critical skills that contribute to one's performance. For instance, research has shown that exercising regularly modulates and induces structural and functional changes in the brain, bringing about enormous benefit to both cognitive functioning and wellbeing.<sup>9</sup> Accordingly, the CESP's efforts in the Soldier Strong Programme for the schoolhouses in the Army (i.e. BMTC, Officer Cadet School [OCS], and Specialist Cadet School [SCS]) focus on multiple facets in the behavioural domain, for example, incorporating a change in fitness programmes so that soldiers train more effectively, and equipping trainees with psychological resilience skills to

help soldiers perform better and remain resilient despite setbacks.

As for cognitive and mindfulness training, it is undeniable that cognitive function tends to decline with age. However, studies related to cognitive training have shown that keeping mentally active can help to maintain healthy cognitive functioning. This works on the premise that mental stimulation can improve neuroplasticity, which is the brain's ability to form and reorganise connections between brain cells in response to new tasks. Nouchi and colleagues found that young adults who participated in brain training games demonstrated an improved speed in processing, higher executive functions and increased working memory at the end of the trial.<sup>10</sup> In addition, mindfulness trials have been shown to reduce the primary stress appraisal in individuals, and allow for better uncertainty management in the military.<sup>11</sup> In the RSAF, mindfulness tools have been integrated into the daily training processes and procedures to aid Operators in maintaining vigilance and alertness, in both critical and routine phases of operations. These tools include cues to prolong and improve alertness on the tasks at hand.

To put it into context, let us imagine a day in the life of a sports psychologist for a soccer team. A sports psychologist is someone who works, in synergy alongside the trainers, with the athletes throughout their journey as a professional player. John is a sports psychologist for the youth soccer team in Singapore. He comes in, and finds that as a result of a post-defeat in a friendly match with another neighboring country, all of his team members are feeling deflated and showing signs of a loss in morale. They are lazing around, and through their facial expressions of misery, lamenting about their loss. One of the basic goals of John as a sports psychologist is to work on the athletes' motivational goals. Sensing this issue, he rounds them up and decides to pause typical training to bring them to a nearby canteen for a break. This brings the boys out of their usual training ground, and sets up a new environment without any prior feelings of negativity (due to the loss—sometimes seeing the soccer field reminds them of it) for a brand new place to talk about motivational and anxiety issues. At the canteen, he buys all of them drinks and food, and begins to casually talk

about the last game. While he allows the boys to lead the discussion, he slowly steers it into the management of anxiety and stress. During their talk, John will use psychological interventions to improve the management of anxiety and the various emotions and stress of performance in order to enhance attention, perception and concentration skills of the individual. Once he has talked it all through, and no other matters are being flagged up, he brings them all back to the field and restarts their training in tandem with their trainer.

From this example, we can see that one aspect of care that sports psychologists focus on is supporting the emotional well-being of players and coaching staff. A lot of pressure can be placed on athletes and teams to win, and this pressure can cause stress-related responses in everyone associated with a sport or sports organisation. Sports psychologists assist in the care and support for this stress. Aggression, confidence, anger, and lack of an ability to operate in a team-oriented position are also issues that might be targeted in these sessions.

## CONCLUSION AND OTHER RISING TRENDS

Finally, there are some emerging trends that the SAF can adopt to improve our soldiers' performance.

The first is using technology such as wearables to enhance training and identify the optimum training zone. Psychologists Patterson and colleagues have shown that technology can be used to build resilience in individuals, specifically those at risk of exposure to traumatic experiences and developing mental issues as a result.<sup>12</sup> Virtual Reality (VR) – based interventions have shown that it helps curb an individual's anxiety disorders. In one of such examples, military personnel with Post Traumatic Stress Disorders (PTSD) of the battlefield have been slowly exposed to VR that simulates battlefields and other traumatic, triggering events systematically. This helped the afflicted personnel to slowly unlearn their anxiety response. This breaks up the classically paired conditioning of stimulus (battlefield trauma) and response (feeling anxious, sweating, heart racing) slowly, by the use of VR. For example, Mallak highlighted that a stress resilience training system is useful for the military setting. This is similar to the inoculation concept outlined above, but

takes it further in that these controlled environments could be simulated via virtual reality or through different types of games similar to a warfare setting.<sup>13</sup>

A second area of potential research by psychologists in the SAF entails decoding physical and mental differences between men and women, so as to enhance women's role in SAF operations. Oftentimes, it has been found that gender is not the problem for women being 'optimised' for warfare and military operations. However, we must acknowledge that there are biological differences between males and females. For example, Dr Heather MacDonald argued that physiologically, there is already a difference in the way a man's body can handle more weight than a woman's. While physical hardships may be the primary challenge faced by most combatants, the mind (resilience) and body (physical) are in fact correlated.<sup>14</sup> Preliminary research done by Zarulli and colleagues found that women are more likely to survive in long-term famine,

with bodies that are designed to have higher mortality survivability as compared to men.<sup>15</sup>

In summary, this essay has showcased how one can gain resilience, and provides an insight into how resilience training is conducted in the SAF. Through it all, it is imperative to note the important partnership that commanders and trainers have with psychologists in the SAF, which is key in promoting performance enhancement in our soldiers, airmen, and sailors. Psychology, when applied well in the military context, can bring about great gains in our personnel's potential and wellbeing over time. Any psychological intervention would be most effective when led and driven by our SAF commanders, who remain at the forefront of battles with their soldiers, airmen and sailors. With commanders and psychologists continuing to build and strengthen their close partnership, there is a promising future for the further application of psychology in performance enhancement and maximisation.

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# PSYCHOTHERAPY AT A DISTANCE: THE ALLURE OF TELETHERAPY

By Ms Dorothy Teo, Ms Annabel Koh, Ms Tina Tin & Ms Joanna Ng

*The crowd will see you now, the patient will see you now, Dr. Google will see you now, the robot will see you now, the avatar will see you now. Everyone will see you now. Everyone but the doctor.'*

Dr. Eric Topol, Director,  
Scripps Translational Science Institute<sup>1</sup>

## INTRODUCTION

The current pandemic and the adjustment to new norms of physical distancing have posed challenges for the mental healthcare sector which has traditionally delivered services via a face-to-face format. Other factors may also limit access to mental health treatment. In this essay, we explore the use of teletherapy as one viable treatment option and examine the plethora of advantages associated with it.

## MENTAL HEALTH DISORDERS & THEIR PREVALENCE

The burden of mental illness continues to grow, with significant impact on health and social consequences worldwide, including decreased productivity and increased government welfare expenditures. The Singapore Mental Health Study (SMHS) initiated in 2016 and spearheaded by the Institute of Mental Health (IMH) found that one in seven persons in Singapore has experienced a mental disorder in their lifetime.<sup>2</sup> A comparison of the results of the 2016 study with the previous 2010 SMHS findings reflect an increase in lifetime prevalence of mental illness from 12% in 2010 to 13.9% in 2016. More alarmingly, the 2016 study reported that the majority (more than three-quarters) of people with a mental disorder in their lifetime did not seek any professional help.

Such figures weigh heavily on the SAF, who is responsible for the maintenance of good physical and mental health of its servicemen and women. Moreover, for reasons of safety, it is vital to ensure that personnel handling arms and other potentially dangerous

equipment are psychologically healthy. Singapore depends on the military for defence and action in crisis situations, and the assurance that soldiers are mentally well-adjusted is vital in maintaining the trust of Singapore citizens.

## PSYCHOLOGICAL INTERVENTIONS

There are 157 diagnosable mental health disorders.<sup>3</sup> While differing in presentation, these are generally characterised by a combination of abnormal thoughts, emotions, perceptions, behavior, and relationships with others. Common mental disorders include depression, anxiety, adjustment disorders, alcohol use disorders, trauma-related disorders, obsessive compulsive disorders, and developmental disorders such as autism.

Psychotherapy or psychosocial interventions, broadly defined as non-pharmacological treatments targeting psychological or social factors, can improve symptoms, functioning, and quality of life when used in the treatment of persons with mental disorders.<sup>4</sup> One dominant model of treatment delivery focuses on individual psychotherapy, administered typically within a face-to-face setting to one person at a time via a trained mental health professional such as a clinical or counselling psychologist at a health care facility or private office. Within a typical therapy setting, the main focus is on open sharing and exploration across a number of sessions with a therapist who promotes insights into issues and offers possible solutions or coping mechanisms.

## MINDING THE TREATMENT GAP

A treatment gap is defined as the percentage of individuals who require care and yet do not receive treatment. In our local population, the high treatment gap is concerning as indicated by the 2016 SMHS indicating that more than three-quarters of persons with a mental disorder in their lifetime did not seek any professional help. This significant treatment gap



Picture 1: Clinical psychologist from the SAF Military Medicine Institute's Psychological Care Centre conducting in-person psychotherapy.

illuminates the necessity of promoting treatment uptake. Yet, while key in reducing dysfunction, traditional in-person psychotherapy to treat mental disorders has not always been easily accessible to many, a problem compounded by the COVID-19 pandemic. With a slew of restrictions put in place in the nation's efforts to combat rising infections, psychotherapy services soon became increasingly limited, as practitioners found themselves reducing the numbers of clients seen daily. Beyond the challenges imposed by the pandemic, the presence of several other barriers complicate access to one-to-one psychotherapy. These include time commitment, stigma, costs associated with psychotherapeutic interventions, and discomfort talking about personal issues.<sup>5</sup>

## Time Commitment

Time constraints are associated with poor utilisation of face-to-face treatment, as psychotherapy is traditionally delivered in weekly, hour-long appointments in fixed locations. Individuals with employment or childcare demands may lack the flexibility to attend such appointments on a consistent basis.

## Stigma

Concerns regarding the stigma associated with mental illness is a common reason for treatment delay. Public stigma relates to the discriminatory or negative attitudes others hold about mental illness, while self stigma involves the negative attitudes that people with mental illness have about their own condition. The stigma that many cultural groups have related to seeking mental health treatment is one of the largest barriers to embracing treatment resources. In many Asian cultures for example, seeking professional help may run counter to cultural values of the family as a unit, avoiding shame and exercising emotional restraint.

## Costs of Psychological Interventions

Given the long-term nature of mental health treatment and recovery, finances are a legitimate consideration in the decision about whether to seek help, particularly during times of economic hardship. Rates in private healthcare sectors easily go up to \$250 nett or more an hour for psychotherapy, depending on the experience, training and specialisation of the clinician. While fees are kept more affordable at restructured hospitals and IMH, and at no cost in SAF,

some possess fears relating to privacy and the sharing of electronic medical records across public healthcare establishments and with employers.

## Discomfort Talking about Personal Issues

Discussing private topics with someone not known during in-person sessions can be perceived by some as threatening or embarrassing. Within the Asian context, even when people do seek therapy, there is some evidence that they are less likely to disclose their problems fully compared to those in European cultures, and this can be explained culturally. Asian cultures stress 'saving face' and relying on family as opposed to outsiders.

## THE SOLUTION? TELETHERAPY TO THE RESCUE

The COVID-19 pandemic has forced a new reality on global labour markets, with many workers making the abrupt shift to working remotely outside of traditional office spaces. This transition to a remote model of working has likewise been witnessed in the area of mental healthcare. In the quest to avoid disruption to essential mental health services, the switch to telehealth therapy (or teletherapy) rapidly became the norm during the circuit breaker period in Singapore. Referring to the use of telecommunication and information technologies to provide access to health services and information across a geographical distance, telehealth has risen to the challenge at a time when constraints imposed by a pandemic no longer make physical consultations an immediate go-to option. Encompassing the use of traditional telephones, smartphones and therapy-related applications, internet video calls, or online computer-mediated treatment programmes, one popular medium of service delivery has been that of video conferencing technology across local mental health service providers. To date, virtual therapy sessions are still being offered to suitable clients across various public and private settings alike, in alignment with government guidelines that require implementation of work-from-home when possible as the default arrangement.

Aside from video conferencing technologies, other models of delivery of psychological interventions offer hope to persons in need of services who cannot or

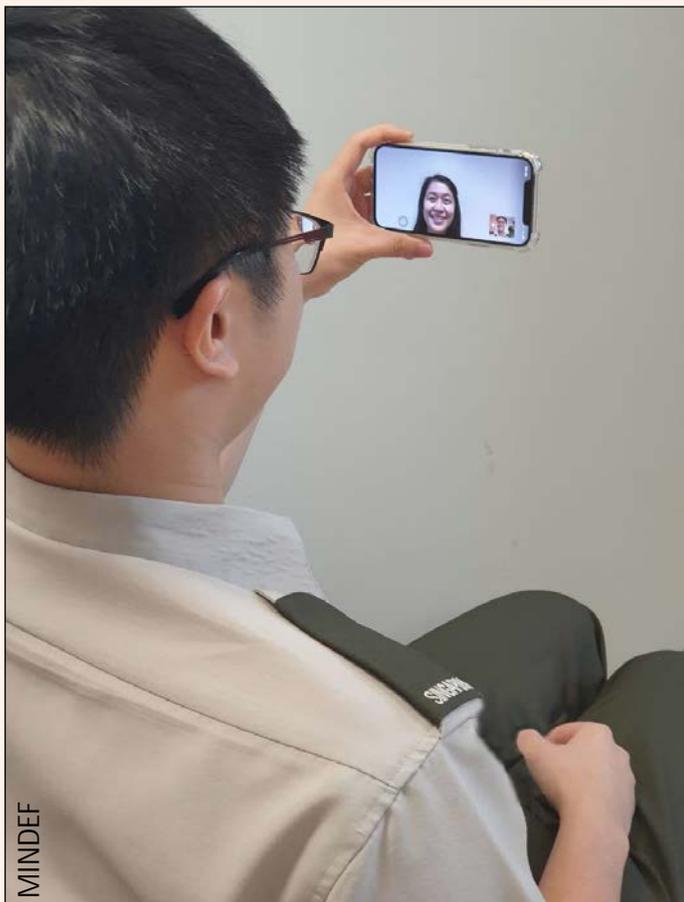
do not want to access help in-person. These alternatives have in common the advantage of circumventing the issues that beleaguer traditional in-person psychotherapy. The flexibility afforded by treatment approaches that do not demand face-to-face contact in a fixed setting, the reassurance of not being recognised by others which may alleviate concerns about stigma related to mental health treatment, and the sense of safety created by the distance of teletherapy are just some of the benefits of leveraging on other mediums to communicate with clients. These possibilities are discussed in turn.<sup>6</sup>

## Web-Based Interventions

Internet-based interventions can be delivered to large populations in a primarily computer literate society, and can be utilised flexibly and accessed easily. They can be differentiated according to whether the internet is used to communicate and/or to deliver information. Internet-based therapies such as video conference-based therapies that have become more commonplace are used for purposes of communication, as are emails or chats, differing in whether they involve real-time help or delayed interaction with clients. In terms of pure information delivery, web-based unguided self-help programmes that use the internet as a medium of delivery are readily available. A complementary approach, meeting the objectives of information delivery and communication is also available, as in cases where web-based guided self-help programmes are combined with regular contact with a therapist.

## Telephones

Telephone-based psychotherapy is similar to in person treatment and provides clients with a private window in which they can talk one-to-one with a therapist, while affording the increased convenience that comes with flexible appointment timings and locations. Individuals who can particularly benefit from this form of treatment include older adults who may be unfamiliar with navigating web-based technologies as well as those who lack ready access to internet services and are thus unsuited for web-based interventions. Interestingly, telephone-administered psychotherapies have been found to have lower rates of attrition than traditional face-to-face individual psychotherapy.



Picture 2: Internet video calls and video conferencing may be useful for teletherapy.

## Smartphones

With technological advances, the mobile telephone has ceased to be simply a portable telephone for the purpose of making and receiving calls. A common form of mobile phone intervention relies on the use of short message service or text messaging. Messages sent to clients can consist of standardised messages as well as personalised feedback. As part of a blended approach to therapy, smartphone applications provide a channel for therapists to deliver educational materials and interventions. Mobile therapy applications generally use technologies for different purposes. Firstly, many mobile applications permit monitoring of emotional states, thoughts, and behaviours at intervals, tracking patterns in these data and providing avenues for interventions which can be discussed with the therapist during subsequent in person sessions. Mobile applications also enable client therapist communications, allowing professionals to offer support and advice throughout the day even when clients are not within a physical therapy setting. In some instances, these applications can connect the user to an online support community so clients can receive advice

or chat with group members when encountering psychological distress. Lastly, mobile applications can be used to promote self-paced learning, encompassing a combination of multimedia, text, and digital activities such as surveys to assist clients in learning new psychological frameworks and practising helpful interventions.

## WHAT'S TRENDING NOW

We take a look at some of the popular technologies used in this digital era.

### Smartphone Applications

Smartphone applications have shown to be a valuable adjunct to psychotherapy for some conditions like Post-Traumatic Stress Disorder (PTSD) and sleep difficulties.<sup>7</sup> They provide psychoeducational information about the condition, self-assessment tools that allows users to track their symptoms over time, coping tools to address acute symptoms when they arise, and contact numbers for emergency and crisis support. These features help patients to manage their symptoms better in between clinical sessions, with some studies showing that they can contribute to the reduction of symptom severity while the patient is awaiting treatment.<sup>8</sup>

Beyond helping patients to manage their symptoms, some applications allow patients to stay connected to their providers in between sessions and assist in feedback-informed care. Feedback-informed care is a model of treatment designed to encourage patients to assess their well-being outside of clinical sessions and provide feedback on care progress to their treatment providers. It has been shown to improve psychotherapy compliance and outcomes.<sup>9</sup> Digital tools that support this approach consist of two primary components: (1) a patient-facing mobile application and (2) a clinician-facing web-based dashboard. Patients can use the application for real-time mood tracking, clinical surveys, and daily journaling. Clinicians can then access a web-based dashboard to obtain summarised data entered by the patient and check on their patient's mental health status between clinical visits. This data driven approach can bolster the therapeutic alliance and help providers build individually tailored therapies.<sup>10</sup>

## Web-Based Psychotherapy

Internet-based psychotherapy programmes have been developed and tested in several psychiatric disorders and in some physical conditions as well, including chronic pain, and irritable bowel syndrome.<sup>11</sup> Most internet-based treatments available currently are based on Cognitive Behavioural Therapy (CBT), although there are a few programmes based on other therapeutic modalities such as Acceptance and Commitment Therapy (ACT), interpersonal psychotherapy, mindfulness, and psychodynamic psychotherapy.<sup>12</sup> Treatments that tap on CBT are particularly suited to technology platforms, including web and smartphone, because CBT typically includes educational content and instruction in practical coping skills.

Internet-based psychotherapy programmes based on CBT are commonly known as Computer-assisted Cognitive Behavioral Therapy (CCBT) and may be delivered with or without clinician support. Typically with clinician involvement, the programmes could be implemented with fewer and briefer sessions.<sup>13</sup> Multiple meta-analyses have confirmed that CCBT is as effective as standard face-to-face CBT.<sup>14</sup> However, other studies have also found that clinician-supported CCBT programmes resulted in greater improvement in depression, compared to unsupported CCBT.<sup>15</sup>

There are several CCBT programmes which are developed by researchers from different countries such as Australia and the United States.<sup>16</sup> They are available in a variety of languages and formats, including the use of written information, multimedia, stimulating interactive learning exercises and quizzes.<sup>17</sup> Even though the number of sessions in each programme may vary, the content covered by the sessions is similar and includes the basic concepts and methods of CBT, such as identifying and modifying automatic thoughts, activity scheduling, and revising maladaptive core beliefs.<sup>18</sup>

## RELEVANCE TO THE SAF

Using remote forms of teletherapy can increase access and reach. Within a military setting, face-to-face mental health care provision can be challenging during long deployments. Mobile health can be used to reach troops on such deployments. It can also reach out to those reluctant to seek face-to-face care due to fear of

stigma and concerns about confidentiality or mental health treatment impeding career advancement.

Mobile health applications can expand health care treatment both in depth and breadth. Depth can be achieved through the use of structured homework activities between face-to-face sessions. Breadth is achieved through targeting those with milder conditions or those who have stabilised and are more able to engage in self-help, thus freeing up clinicians to spend more face-to-face time with servicemen and women with more serious or acute mental health issues.

Cuijpers conducted a meta-analysis of mobile health applications and found that, compared to unguided self-help approaches, guided self-help was more effective (reaching statistical significance) compared to waitlist and care-as-usual.<sup>19</sup> This suggests in cases where safety is paramount, guided approaches are preferable to unguided self-help for patients with diagnosed mental health issues. A human coach acts to assess mental stability on an ongoing basis, as well as to assess learning.

## Challenges of Teletherapy within the SAF

Cuijpers has suggested that internet-based interventions may be more suited for individuals who meet the criteria for manualised treatments (interventions that are performed according to specific guidelines for administration, maximising the probability of therapy being conducted consistently across settings, therapists, and clients), such as absence of personality or substance use problems, as well as complicated psychosocial issues that may require more intensive treatment with highly qualified psychotherapists.<sup>20</sup> Given that a proportion of full-time National Servicemen (NSFs) seek psychiatric care within the military and are still in their adolescence, there is a need to conduct more research to assess the efficacy of such interventions with younger populations.

Although some studies on clinical samples demonstrate positive treatment outcomes, more studies are needed using clinical samples. Internet based interventions have also not been compared with pharmacotherapy nor combined treatments. There is currently insufficient knowledge about the effects on people who are less self-directed or motivated. More

studies are also needed to assess cultural differences. A United States (US) military study by Bush & Wheeler found that the use of mobile health among military providers was lower than among service members.<sup>21</sup> Mental healthcare practitioners need to rely on the use of evidence-based treatments specific to the various mental health conditions. Given that the first mobile health applications were publicly released around 2008, research has been unable to keep abreast of technological advances, considering the intensiveness of research methods such as Randomised Control Trials (RCT) which can take years to complete. Meta-analysis has also been fraught with limitations due to the different variables and outcomes studied. Nonetheless, there remains a necessity to pursue robust research testing of the efficacy of teletherapy before its incorporation into treatment protocols within the SAF.

As data security requirements in the military are more stringent than in civilian settings, integrating data directly from mobile health or internet applications into medical records is not entirely without challenges, potentially leading to loss of useful medical information that could be captured into a serviceman's medical records. The internet offers many self-help applications in the market to choose from, which might be a more efficient route of implementation as opposed to building SAF-specific applications. Yet, whilst desirable and more cost-efficient to harness health technologies from the open market, the issue of security and privacy may pose concerns within the SAF context. Many applications require access to personal information such as user identity and location, or require users to take photographs or upload media files within an application. Due to phone or mobile camera access restrictions, such

applications cannot be readily utilised within camp settings. Nevertheless, from medical specialist reviews to online counselling sessions by the SAF Counselling Centre, the SAF has not been hesitant to jump on the telehealth bandwagon. Within its specialised psychiatric military clinic at Psychological Care Centre, efforts are well underway to conduct tele-psychiatric consults with patients based at various camp locations. The US Army has long adopted the use of telemedicine capabilities for both peacetime and remote settings for augmenting care in their military health system, empowering individuals to manage their own care through the use of mobile devices irrespective of geography or time constraints.<sup>22</sup> It is a matter of time that psychotherapy services within the SAF join the telehealth revolution.

## CONCLUSION

Alternatives to traditional in-person psychotherapy that have been reviewed in this essay are not entirely new, but the current pandemic has accelerated the uptake of at least some other models of treatment delivery. Such models can serve as the primary method of therapy delivery, or as an adjunctive approach to in-person therapy. Most importantly, these other modes of therapy delivery may bridge the treatment gap by sidestepping the major hurdles that typically confront individuals in accessing appropriate mental health care. Within the SAF, while teletherapy offers much promise, its use must be approached with caution, given its limited research. Privacy and data security concerns also restrict liberal use of many mobile or internet applications, thus inviting considerations on harnessing other forms of telehealth interventions that may be more appropriate for the SAF.

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## ENDNOTES

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# OCCUPATIONAL HEALTH PSYCHOLOGY – PUTTING HEALTH INTO OCCUPATIONAL PSYCHOLOGY

By LTC(NS) Koh Ta Chua, Mr Kester Poon & Ms Elaine Soon

## INTRODUCTION

In 2019, the World Health Organisation (WHO) recognised burn-out as an occupational phenomenon, arising as a result of ‘chronic workplace stress that has not been successfully managed.’<sup>1</sup> According to research conducted by two Stanford University professors in 2015, excessive workplace stress and burn-out caused a staggering 120,000 deaths and resulted in almost \$190 billion in health care costs each year in the US alone.<sup>2</sup> When employees experience burn-out, they have ‘feelings of energy depletion or exhaustion’, thus affecting productivity. Furthermore, they also experience ‘increased mental distance from one’s job, or feelings of negativism or cynicism related to one’s job’, thus leading to disengagement and ‘reduced professional efficacy’, which can negatively impact the quantity and quality of work.

Fast forward to today, as we continually combat the current COVID-19 situation, the default national directive to Work-From-Home (WFH) has increased the stress level of the workforce and has a detrimental impact on the workers’ mental health and well-being.<sup>3</sup> Against this climate, how do we ensure work-life balance and suppression of the ‘always on’ mentality? How do we also focus on work amid distractions from family, while mitigating the effects of isolation? These are some of the many workplace phenomena that Occupational Health Psychology (OHP) seeks to understand and address.

## RESEARCH AND DEVELOPMENT IN OHP

OHP is an interdisciplinary area of psychology which focuses on the health and safety of employees at the workplace. Its primary concern is on workplace phenomena such as physical and mental health issues arising from occupational stressors, work-life balance,

workplace violence and harassment, and interventions to enhance employees’ psychological health and wellbeing.<sup>4</sup> As a relatively new field, OHP emerged as a result of inadequate attention paid to occupational stress and employee health within other disciplines of psychology, namely health psychology and industrial and organisational psychology.<sup>5</sup>

The interest in examining and improving employees’ psychological health and well-being is not a recent endeavour. Since the 20<sup>th</sup> century, various attempts have been made in understanding how organisational practices, policies, management and leadership affect employees’ psychological health and well-being. While other disciplines such as sociology, philosophy and politics were beginning to make headway in this emerging area of concern, psychology, being a relatively young discipline then, was unable to make substantial contribution.

Throughout the 20<sup>th</sup> century, much effort in this area of work were mostly positive. However, one of the earliest developments in the US was arguably not—the establishment of Frederick Taylor’s Principles of Scientific Management. Taylor posited that productivity was related to how aware the management was of the working procedures and processes. If the management was ignorant, workers would keep their supervisors in the dark and control these such that they dictated the amount of work to be done and at the speed they choose. Taylor advocated for work tasks to be carefully analysed, standardised and compartmentalised so that supervisors can exert control over their workers’ behaviours.<sup>6</sup> While Taylor’s principles appeared to make both productive and economic sense, they in effect reduced the workers from thinking to doing, depriving them of the sense of control over their work. In

addition, scientific management encouraged the elimination of worker emotions on the pretext that they were sources of interference. These two principles are exactly what occupational health psychologists wish to work against.

One of the earliest research that had a deep impact on the development of OHP was carried out at the Western Electric Company at Hawthorne in the 1920s.<sup>7</sup> Unlike Taylor's work which took a man-as-machine view, Elton Mayo set the individuals in a social context and argued that employees' performance is influenced by their work environment and co-workers as much as their skills and abilities. Mayo and colleagues explored the associations between various working conditions such as salary, lighting and rest, with productivity. They found that whenever changes were introduced, productivity improved.<sup>8</sup> The researchers concluded that being observed and receiving attention had positive effects on workers' behaviours. This ran contrary to Taylor's recommendation of removing worker emotions, as Mayo and colleagues demonstrated the importance of workers' perceptions and feelings about what was happening to them. This effect was later named the Hawthorne Effect, and its development helped recognise the importance of the psychological and social aspects of work.

Perhaps one of the most significant advancements in OHP in the 20<sup>th</sup> century was the development of job design theories. Frederick Herzberg initiated the thinking about the impact of working conditions on job performance and mental health.<sup>9</sup> The author proposed that motivation and job satisfaction could be enhanced by improving people's work, through job enrichment such as increased skill use, and the provision of challenge and recognition. These propositions remain relevant today, and such ideas have stimulated a considerable amount of research on this topic.

By the 1970s, the University of Michigan had conducted numerous 'Quality of Employment Survey', a national survey to investigate the working conditions in the US. Data from these surveys formed the backbone for initial studies that linked work organisation to the health of employees.<sup>10</sup> In the same time period, multiple influential and international conferences were also held on the topic of occupational stress by groups

such as WHO and the National Institute for Occupational Safety and Health (NIOSH). The impracticality of following the Tayloristic framework was further reinforced following Karesek's findings that factors such as job demands and job decisions, as well as mental health were important for cardiovascular health.<sup>11</sup> These findings helped to set the stage for the huge amount of research that we see today, which focus on the psychological, social and cultural aspects of work that are important to both the physical and psychological health in workers.

Several more recent developments also positioned OHP as an institutionalised and mature discipline. The European Academy of Occupational Health Psychology (EAOHP) was established in 1997 by Tom Cox and co-workers in the United Kingdom (UK), together with colleagues from Sweden and Denmark. Its purpose is to promote research, practice and education in the discipline. It hosted its first conference in Sweden in 1999 and this gathering of academics and practitioners continues to this day. Across the Atlantic Ocean, the Society for Occupational Health Psychology (SOHP) was established in the US in 2005. In 2008, it joined the American Psychological Association (APA) and NIOSH in organising the Work, Stress and Health Conference, and has now become a biennial affair. Publication of two journals specifically devoted to OHP also serves to advance the knowledge in this body of work and allows it to emerge as a distinct discipline. *Work and Stress* saw its inception in 1987, and is currently in its 34<sup>th</sup> year while the *Journal of Occupational Health Psychology* has been published by the APA since 1996.

## OHP'S RELEVANCE TO MINDEF/SAF AND APPLICABLE MODELS

OHP's relevance to MINDEF/SAF relates to how service personnel in SAF are confronted with arduous job natures and challenging work environments, from deployments in a range of fluid operational situations, many of them overseas, to shift duties in Jurong Island which disrupt the natural circadian rhythms, to training exercises such as the Army Training Evaluation Centre (ATEC) evaluation. There is already a huge body of literature on stress which examine how excessive amounts of stress can negatively impact performance and well-being. OHP researchers have investigated

whether there are certain occupational groups that are more at risk and thus prone to suffer from poorer mental health and well-being. For example, a study by Thomas Kalliath and colleagues revealed that jobs which require regular contact with other individuals and jobs with threats of physical attack are deemed as 'high-risk' occupations.<sup>12</sup> These occupations include but are not limited to the military, law enforcement and civil emergency services. Among many reasons why these occupations are deemed as 'high-risk', one is related to the concept of emotional labour, which is the regulation of one's emotions to meet the occupational demands.<sup>13</sup> When actual emotions and feelings of employees are different from those needed to be displayed, employees will experience stress and uneasiness. Displaying false emotions or intentionally suppressing one's real emotions also requires effort, which may result in chronic stress. Consider the soldiers in open who have to charge up a knoll to overcome the enemies in deliberate defence. It is natural to be fearful in the face of such adversity, yet the soldiers must display courage and determination to accomplish the objective. More so for the commanders of these soldiers, who must show that they are brave and will not hesitate to move forward, so that they inspire those they lead to do likewise. As we seek to apply OHP in MINDEF/SAF, the following models could be useful.

### Person-Environment Fit

This simple model suggests that the fit between an individual and the environment determines how much stress the individual will experience.<sup>14</sup> Stress arises when there is a mismatch between an employee's capacities and the work demands and environment. On one hand, a good fit occurs when an employee's abilities match the job requirements and work environment. On the other hand, a poor fit creates stress and strain, and can eventually lead to undesirable consequences such as anxiety, depression and other psychological health issues. This model facilitates the understanding that individuals may experience stress differently depending on individual differences such as abilities, values, attitudes and beliefs. More recently, researchers have been evaluating the person-environment fit model within a contextual framework by taking into account other factors such as organisational conditions, which include culture and climate, to allow for a more multidimensional way of

studying work-related stress.

### Demand-Control Model

Robert Karasek argued that there are two factors that lead to the experience of job stress—job demands and job control.<sup>15</sup> On one hand, job demands refer to the requirements of a given job such as workload, condition of the work environment and interpersonal interactions. On the other hand, job control refers to a combination of job autonomy such as authority to make job-related decisions and liberty to use different skills. The author suggested that although job demands contribute to stress, the eventual amount of stress an individual experiences will depend on whether the individual has any control over these demands. For example, a combination of high job demands with low control may result in the job being considered highly stressful, leading to psychological strain. However, employees with high job demands and high control may still be able to maintain good psychological and mental health, and achieve high job satisfaction.

### Job Demands-Resources Model

The model posits that two processes explain the phenomenon of burn-out, namely job demands and job resources.<sup>16</sup> Job demands refer to the physical, social and organisational aspects of a job that require physical and mental effort. Job resources refer to aspects of a job that allow employees to accomplish work tasks while reducing stress caused by job demands. These job resources can include but are not limited to supportive workplace culture, superior and co-worker support and being able to make job-related decisions. For job demands, if they are perceived to be excessively high, the employees will experience exhaustion, health problem and burn-out. Additionally, when job resources are lacking at the same time, employees will become frustrated, which could lead them to becoming disengaged with their work. Such disengagement is argued to be a protective mechanism that protects the employees from further strain when they are unable to complete the assigned work. The model thus assumes that a job with high demands and low resources will result in feelings of exhaustion and disengagement, which are causal factors that will eventually lead to burn-out.

## MINDEF/SAF MENTAL HEALTH FRAMEWORK

The Defence Psychology Department (DPD) recently developed the MINDEF/SAF Mental Health Framework (see *Figure 1*). The framework was developed to aid us in managing the psychological and mental health and well-being of service personnel in a more pro-active and holistic fashion. It is meant to be a dynamic framework that takes into consideration the desired outcomes we want to achieve and the specific context. For example, the desired outcomes can be that 'uniformed personnel are psychologically resilient to carry out military duties', 'Full-time National Servicemen are psychologically safe to perform National Service (NS), or 'all MINDEF employees are psychologically well to work'. The framework also allows us to specify the exact target audience. In this example, we want to address those who are unwell or distressed, while working with those who are well to prevent them from becoming unwell. Based on the target audience selected, the framework then delves into four strategies, each with different focuses and efforts.

Traditionally, psychological and mental health support tend to focus on intervention. This can come in the form of counselling, clinical treatment and therapy,

which remain important ways to facilitate recovery. However, a more proactive approach will require us to prevent and better detect psychological and mental health issues. Prevention work compels us to build up an inclusive and positive culture that dispels stigma while encouraging care for self and others, to create awareness about the prevalence of psychological and mental health issues, and to enhance the psychological resilience of our people. Most importantly, we must have leadership emphasis. To detect, we need our people to have more self-awareness about their own states, and to be willing to raise issues through the command chain. In addition, we need to have robust systems and processes that facilitate identification and feedback. Finally, to stay ahead of the curve, we must invest in research that examines international, national and organisational data, trends and phenomena, and learn and adopt best practices. The foundation of the framework is built on a serviceman-centric approach that requires different stakeholders to collaborate to contribute to the overall effort.

## SAF WELL-BEING CAMPAIGN

By now, we would have been well underway in our multi-year inaugural SAF Well-being Campaign (see *Figure 2*). This effort was initiated to help us mitigate

<b>Desired Outcome</b>	All service personnel are psychologically well to perform their duties			
<b>Target Audience</b>	All service personnel across the entire mental health spectrum (i.e. from well to unwell)			
<b>Strategy</b>	Prevention	Detection	Intervention	Research
<b>Specific Initiatives</b>	<ul style="list-style-type: none"> <li>- Psychological Resilience training</li> <li>- Psychosocial education</li> <li>- Commanders and supervisors training</li> <li>- De-stigmatisation</li> <li>- Leadership emphasis</li> <li>- Organisational culture</li> <li>- Cohesion and esprit de corps</li> </ul>	<ul style="list-style-type: none"> <li>- Self-awareness</li> <li>- Peer identification</li> <li>- Commander identification</li> <li>- Systems and processes</li> </ul>	<ul style="list-style-type: none"> <li>- Self-care</li> <li>- Peer support and psychological first-aid</li> <li>- Treatment and therapy</li> </ul>	<ul style="list-style-type: none"> <li>- Examine international, national and sector-specific trends</li> <li>- Trending within MINDEF/SAF</li> <li>- Research on specific phenomenon (e.g., suicide, DSH, psychological resilience)</li> </ul>
<b>Stakeholders Responsible</b>	Self, commanders, supervisors, peers			Mental health professionals

Figure 1: Mental Health Framework.

against the negative impact of the COVID-19 stressors and to specifically address the psychological and mental health needs of our service personnel.

A 2017 survey conducted by the National Council of Social Service (NCSS) revealed that more than half of the respondents indicated unwillingness to live with/nearby or work with an individual with a mental health condition. They also attributed mental health conditions to a lack of self-discipline and believed that people with such conditions should not be given any responsibility. The study indicates that the stigma surrounding mental health conditions is prevalent, and it discourages help-seeking behaviours.

A 2016 study by the Institute of Mental Health (IMH) also found that there was poor recognition of mental health conditions and the need for treatment

among the general population, and most prefer talking to family or friends instead of seeking help from mental health professionals.<sup>17</sup> Older respondents (ages 35-65) were less likely to recommend seeing a psychologist. These inaccurate perceptions and beliefs are barriers to help-seeking behaviours, referrals of others, and receiving treatment from professionals.

The military culture of strength creates the expectation that personnel should be mission-focused, physically and mentally strong, and self-sufficient. Admission of mental health issues could be perceived as weakness, shirking responsibilities, and cause a loss of confidence in the individual’s abilities and leadership. Hence, disclosure of mental health challenges is likely to be viewed as embarrassing, due to the perceived detrimental implications on one’s career. This may

**SAF WELL-BEING CAMPAIGN**

Over the last few weeks, we have been through Phase 2 (Heightened Alert) due to the resurgence of COVID-19 cases, and we are currently in Phase 3 (Heightened Alert). To sustain our ability to continue this battle and be operationally ready, we must stay physically fit and psychologically well. This will ensure we can perform optimally when called upon.

**We have planned numerous initiatives in the coming months to enable us to learn to take better care of ourselves and those around us**

**IN THE COMING MONTHS, LOOK OUT FOR**

- LUNCH TIME TALKS**
- RADIO TALK SHOWS**
- ONLINE WELL-BEING SELF CHECK**
- DIV/FMN WELL-BEING DAY**
- PRIVATE COUNSELLING SERVICE**
- DEPT WELL-BEING PULSE CHECK**
- ONLINE RESOURCES & TIPS**

Brought to you by:

GI-ARMY, Defence Psychology Department, NITE

**BETTER ME**

mindline.sg

1800-278-0022 SAF Counselling Hotline

Figure 2: SAF Well-being Campaign.

further perpetuate the refusal or delay in seeking help.

Using the MINDEF/SAF Mental Health Framework, we designed the SAF Well-being Campaign and developed various initiatives to address the issues raised above. To capitalise on leadership emphasis, we launched the campaign with a message from Chief of Defence Force (CDF), to encourage service personnel to pay as much attention to their psychological well-being as they would with their physical fitness to ensure operational readiness. Various longer-term enhancements to training and immediate-term initiatives will be introduced. These include psychological resilience and psychological first aid training to be included into various Route of Advancement (ROA) courses, well-being self-check via mindline.sg, department work well-being pulse check, Division/Formation (Div/Fmn) well-being day, private counselling service provided by an external vendor, lunch-time talk and many more.

## FUTURE DIRECTION

Amongst many gaps in knowledge and practice that must be bridged, two pertain to the implications of technological advancement and increase in remote working. Advances in technology have enabled digital work, and the COVID-19 situation has normalised WFH. Many of us have to monitor and respond to information arriving from multiple electronic platforms on a daily basis, which could be a source of stress. These include emails sent through several MINDEF systems and devices, as well as text messages on various messaging platforms like WhatsApp and Telegram. The use of new technology can also lead to challenges. For example, it is commendable that the organisation responded quickly to the WFH modality and used remote devices to reduce disruption to work. If done poorly, however, it may impact working hours and work-life balance, which could possibly lead to burn-out. WFH has its challenges too, with the blurring of work-life boundaries leading to

longer working hours, increased work-family conflict as personal and family commitments interfere with work commitments, and workplace isolation resulting in perceived lack of superior and co-work support.

MINDEF/SAF currently does not have an agency to look at the impact of work on service personnel. While there is a medical directive on occupational health and safety, the psychological aspect is not well addressed. MINDEF/SAF stood up its psychological health capability in 2015 with the creation of Div/Fmn Defence Psychologist (Psychological Health) [DP(PH)] establishments. The initial focus was on supporting service personnel with mental health issues and those who are in distress. Psychological Health Group (PHG) was later created in DPD to oversee the work of the DP (PH)s. Going forward, PHG and the DP(PH)s will anchor OHP and identify relevant stakeholders in MINDEF/SAF to collaborate with. This will extend the reach beyond those who have mental health issues or are distressed, to also include service personnel who are well, to prevent them from becoming unwell and to also enhance their performance in the workplace.

## CONCLUSION

While our organisation has started to pay more attention to our service personnel's psychological health and well-being especially during the current COVID-19 situation, more could be done to ensure that this focus continues well after the end of the pandemic. To ensure that our people stay psychologically well to carry out their duties and perform at the optimal level, we need to invest effort to build up our OHP capability. In the longer term, we need to establish a better understanding of occupational stress and its impact on employees' psychological health, well-being and performance, and extend our awareness by examining other OHP areas such as organisational culture and climate, workplace characteristics and psychosocial factors, workplace harassment and bullying.

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# IN PURSUIT OF SAFETY – THE APPLICATION OF PSYCHOLOGY IN SAFETY EDUCATION, DATA ANALYSIS AND INVESTIGATION

*‘Our SAF commanders know that precious sons are entrusted to us when they train during NS. Our commanders take this seriously, and never take this trust for granted.’*

Minister for Defence, Dr Ng Eng Hen, 2018<sup>1</sup>

## INTRODUCTION

Military training and operations in the SAF is conducted largely in a peacetime climate and is heavily dependent on a conscript force. In return, the SAF has a responsibility to care for the well-being of our servicemen and ensure the safety of all personnel. Unfortunately, a spate of training incidents occurred from 2017 to 2019, leading to the insertion of Safety as a mission outcome, a review of the SAF’s safety processes, and the set-up of the Inspector-General’s Office (IGO), to oversee the emphasis and alignment of safety management across the SAF.

## RISKS AND SAFETY ATTITUDES IN THE MILITARY

In the military, taking calculated risks is essential to effectively manage potential threats and achieve mission success. Research has shown that management’s commitment to safety influences individuals’ safety knowledge and training, which in turn influences their risk behaviour (see *Figure 1*).<sup>2</sup> Risk behaviour is defined here as the extent to which personnel ignore safety regulations to get a job done.<sup>3</sup> By understanding the factors influencing risk behaviour, the propensity for servicemen to engage in unhelpful risks can be allayed.

## Management Commitment and Supervisors’ Involvement in Safety

The management makes decisions pertaining to the organisation’s safety systems and the provision of

By Ms Grace Yip, Ms Serene Koh & Ms Alicia Lee

safety training.<sup>4</sup> In the SAF, the Commanding Officers (COs) and members of the battalion headquarters may be perceived as the management, and those in the appointments of Officer Commanding, Platoon Commanders, Platoon Sergeants and trainers fulfil the supervisory role. These commanders are directly in contact with soldiers and convey safety practices from the management to the soldiers.<sup>5</sup>

Both management and supervisor’s commitment to safety may increase a soldiers’ safety knowledge and training, through emphasis and demonstration of safe practices. With greater awareness of the negative consequences of certain risks, the likelihood of engaging in risk behaviours decreases.<sup>6</sup> Additionally, when commanders prioritise safety, soldiers may interpret that safe behaviour is vital and follow suit, reinforcing these practices.<sup>7</sup>

Practically, commitment to safety can be demonstrated through commanders’ words and actions.<sup>8</sup> For example, adherence to safety rules even in high-stress conditions and openness to hearing about safety concerns may indicate safety emphasis and care for soldiers’ safety.<sup>9</sup>

## Individual’s Safety Knowledge, Accountability and Responsibility

As compared to commanders, soldiers may feel that they have less power to make an impact, and in a conscript army like the SAF, soldiers are less likely to be as motivated as compared to voluntary militaries. Such attitudes may lead to beliefs that commanders should shoulder the responsibility of safety and be accountable for the safety of the team. This may result in fatalistic beliefs, which refer to perceptions that individual safety practices have little influence on accidents, increasing risk behaviour.<sup>10</sup>

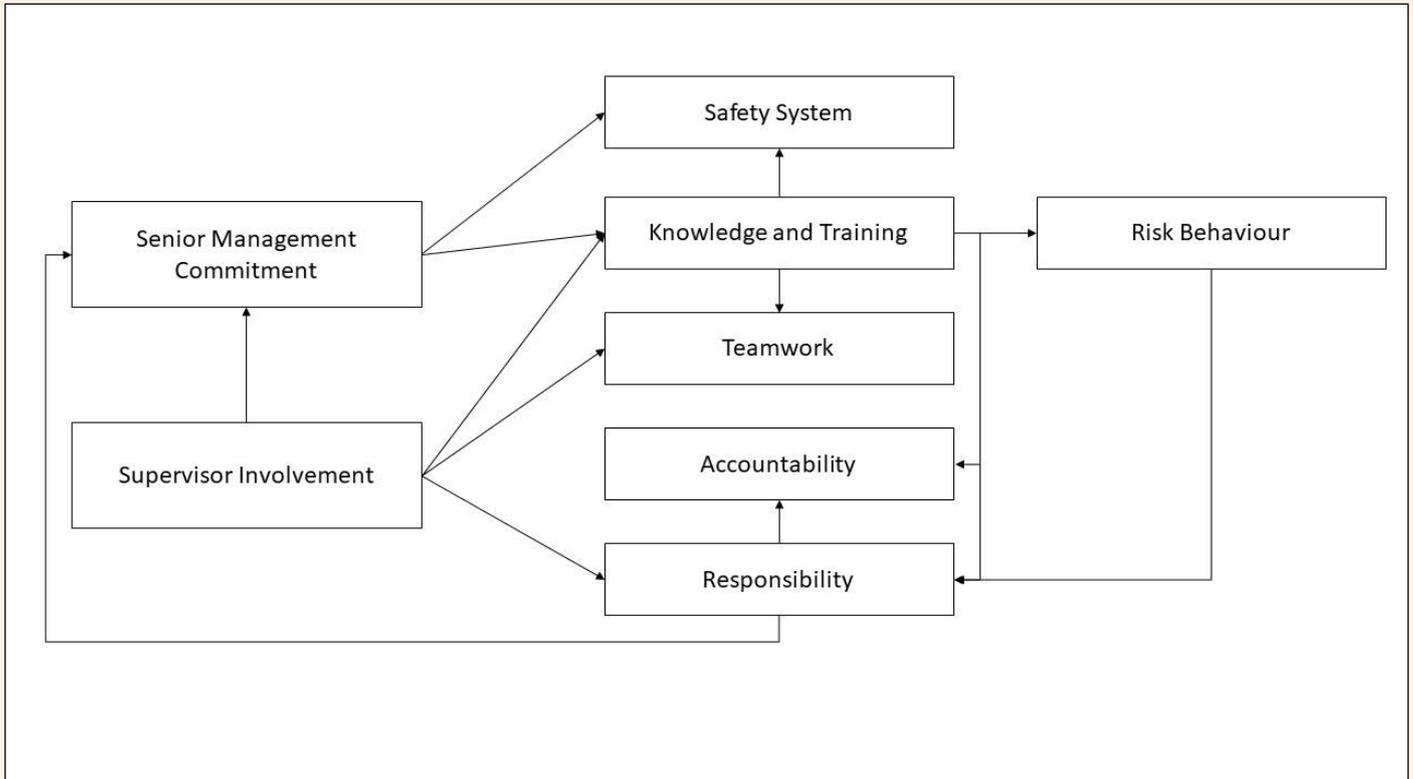


Figure 1: Associations between Managers’ Commitment to Safety and Risk.<sup>11</sup>

However, this can be alleviated through knowledge and training.<sup>12</sup> When commanders adopt a participative approach, delegating tasks to team members and responding to their concerns, soldiers will grow in their safety knowledge, while feeling a greater sense of responsibility for workplace safety and accountability to their team.

### Teamwork

Soldiers often operate in teams and are dependent on one another to fulfil the mission objectives. Not only must soldiers comply with safety regulations individually, it is vital that they participate in behaviours that encourage safety among their teammates.<sup>13</sup> In cohesive teams and units, soldiers are more likely to be motivated to engage in safety behaviours, for example, sharing lessons learnt from their mistakes to benefit their teammates. This will subsequently encourage the team to reciprocate and engage in safety behaviours, as prioritising safety is seen as a team norm.<sup>14</sup>

Thus, balancing safety in a high-risk military environment requires concerted effort from all soldiers, at all levels. As Defence Minister, Dr Ng Eng Hen, said in 2019, ‘Ultimately, safety is both a command and individual responsibility and everyone needs to play their

part because precious lives depend on it. It is not true that we cannot train safely if we want to train realistically.’<sup>15</sup>

## ROLE OF PSYCHOLOGY IN STRENGTHENING SAFETY

Psychologists in MINDEF/SAF partner commanders and soldiers to strengthen safety in the SAF. Over the years, psychologists have contributed towards efforts to enhance safety, in the areas of education and training, data analysis and research, and as a source of human factors expertise in the development of safety frameworks and in investigations.

## PSYCHOLOGY IN SAFETY EDUCATION AND TRAINING

There is consensus in safety literature that effective training and competency assurance is essential to influence safety attitudes and reduce accidents.<sup>16</sup> For example, safety knowledge can influence compliance to safety policies and procedures, with a lack of skills and knowledge identified as one of the main causes of unsafe behaviours.<sup>17</sup> Hence, it is unsurprising that most of our safety education and training focuses on imparting knowledge and skills related to safety management systems.<sup>18</sup>

## Grounding Safety Education and Training with Research and Psychological Science

*‘Safety and health management is very much a movement and journey—the more you can identify gaps, the faster you can improve.’*

Chairman, Second External Review Panel on SAF Safety, Mr Heng Chiang Gnee, 2020<sup>19</sup>

Safety education and training can be further enhanced by adopting recommendations based on empirical research. This will allow a more holistic approach to safety system gap analyses. For example, a balance between qualitative and quantitative research can be struck to: (1) identify systemic gaps; (2) identify human factors contributing to safety incidents; and (3) propose recommendations to improve the existing safety system. By examining research findings in totality with other sources of information (e.g., safety audits, safety surveys, focus group discussions, interviews), the provision of key feedback for commanders to make informed decisions about the continuous improvement of safety and health management is enabled.

Following the identification of systemic gaps and human factors that contribute to accidents, empirically based recommendations could be proposed for the

training of soldier fundamentals, formal and informal training programmes and formative and summative assessments on safety-related matters.

## Application of Psychological Science in Safety Education and Training

Contrary to popular belief, safety is not intuitive as humans are innately susceptible to many cognitive biases (e.g., overconfidence bias and confirmation bias).<sup>20</sup> Soldiers are also not immune to other considerations arising from human interactions. For instance, in our military context, ‘power distance’ and ‘missionitis’ often influence decisions. These cognitive biases and social pressures influence safety attitudes and may guide attention and efforts in the wrong direction.<sup>21</sup> Hence, cognitive biases should be examined to promote safe behaviours.

As people are largely unaware of their cognitive biases and social influences, one of the most important interventions is to bring these to awareness through education and training. In the SAF, examples of safety education and training programmes that help with self awareness and self-management include Behavioural Based Safety, Crew Resource Management, and using Mindfulness in Safety. These programmes are based on psychological and human factor research, with the

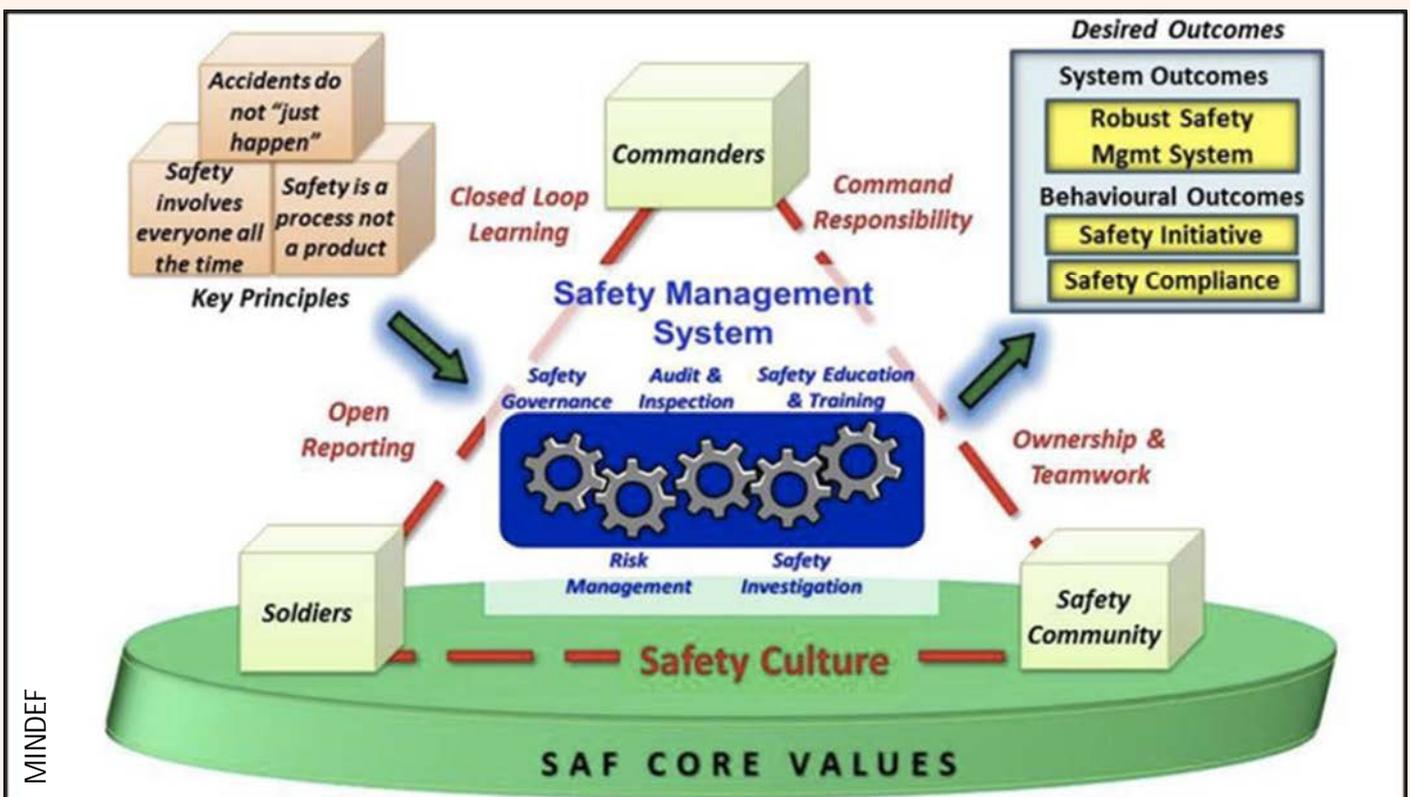


Figure 2: Army Safety Culture Framework.

Services adapting these programmes to fit the needs of their servicemen. For instance, as part of Crew Resource Management, commanders learn to perform role-task analysis, where they identify the physical and cognitive constraints of their work, to prevent safety incidents.

Additionally, counteractions to overcome cognitive biases and other human factors have been included in safety educational materials such as videos, infographics and posters for dissemination to our commanders and soldiers, enabling a greater reach to our servicemen.

## PSYCHOLOGY IN SAFETY DATA ANALYSIS

In quantitative research on safety, Safety Culture is often an area of interest. A unit's safety culture refers to the safety beliefs and attitudes that soldiers and commanders may adopt. This is often measured and analysed through the Safety Climate, which refers to soldiers' perceptions of their unit's safety policies, processes, and prioritisation of safety in the workplace.<sup>22</sup>

Psychologists conduct Safety Climate Surveys for their Services and support IGO in the conduct and analysis of safety surveys. Findings of different aspects of Safety Climate are used as a developmental tool for COs to understand their unit culture, spanning a range of themes such as perceptions of the leadership's emphasis of safety practices and individual safety attitudes.

### Refining and Validating Surveys to ensure Accurate Findings

To accurately inform commanders of possible areas for improvement, surveys need to be reliable and valid.<sup>23</sup> This is achieved by reviewing safety literature and contextualising it for the SAF. Established safety guidelines such as the Ministry of Manpower's Workplace Safety and Health CultureSAFE Model, the United Kingdom's Health and Safety Executive Workplace Safety and Health Surveys as well as safety surveys used in other militaries are referenced, ensuring that the SAF's safety research remains benchmarked with industrial best practices.<sup>24</sup>

After sufficient data is collected, survey questionnaires are validated, verifying that survey items are indeed measuring what they were intended to

measure. Additional analyses are conducted to assess if the hypothesised drivers predict safety performance, enabling the derivation of safety culture frameworks in the SAF. For example, the Army's safety climate survey findings have been validated against the Army Safety Inspectorate's framework (see *Figure 2*) to ensure that the drivers and outcomes measured are valid.

### Guarding against Survey Bias to encourage Honest Reporting

In safety literature, researchers are cognisant of the need to guard against impression management as a method bias in workplace safety surveys.<sup>25</sup> When organisations in high-risk industries place strong emphasis on safety, employees may feel compelled to provide socially desirable responses on safety measures, regardless of their true opinions.

This has also been evident in the SAF, where findings from safety surveys revealed that soldiers may be hesitant to make open reports as they perceive that commanders prefer reports to be made through the internal chain of command, and because of a lack of confidence in their reports. As safety surveys adopt a self-report format and collect feedback on unit safety practices, soldiers may at times also feel afraid to be honest in their responses, in fear of possible punishments they may face.

To encourage the sharing of honest opinions and build an open culture, commanders should view safety surveys as a developmental tool, to identify areas of safety culture that can be improved. The consequences of a soldier self-reporting a safety error should be reasonable—not too light (to avoid seeming nonchalant towards safety), and not too heavy (to avoid inculcating a culture of fear).<sup>26</sup> Similarly, when commanders commit a mistake or identify safety lapses in their unit, the actions taken against them should be fair. Having a just culture is not only important in facilitating the provision of honest survey responses in safety analysis, but is also crucial in safety investigations.

## PSYCHOLOGY IN SAFETY INVESTIGATIONS

Despite technological advances in machinery and efforts to enhance safety, most safety incidents and accidents are attributed to the human more than 70% of

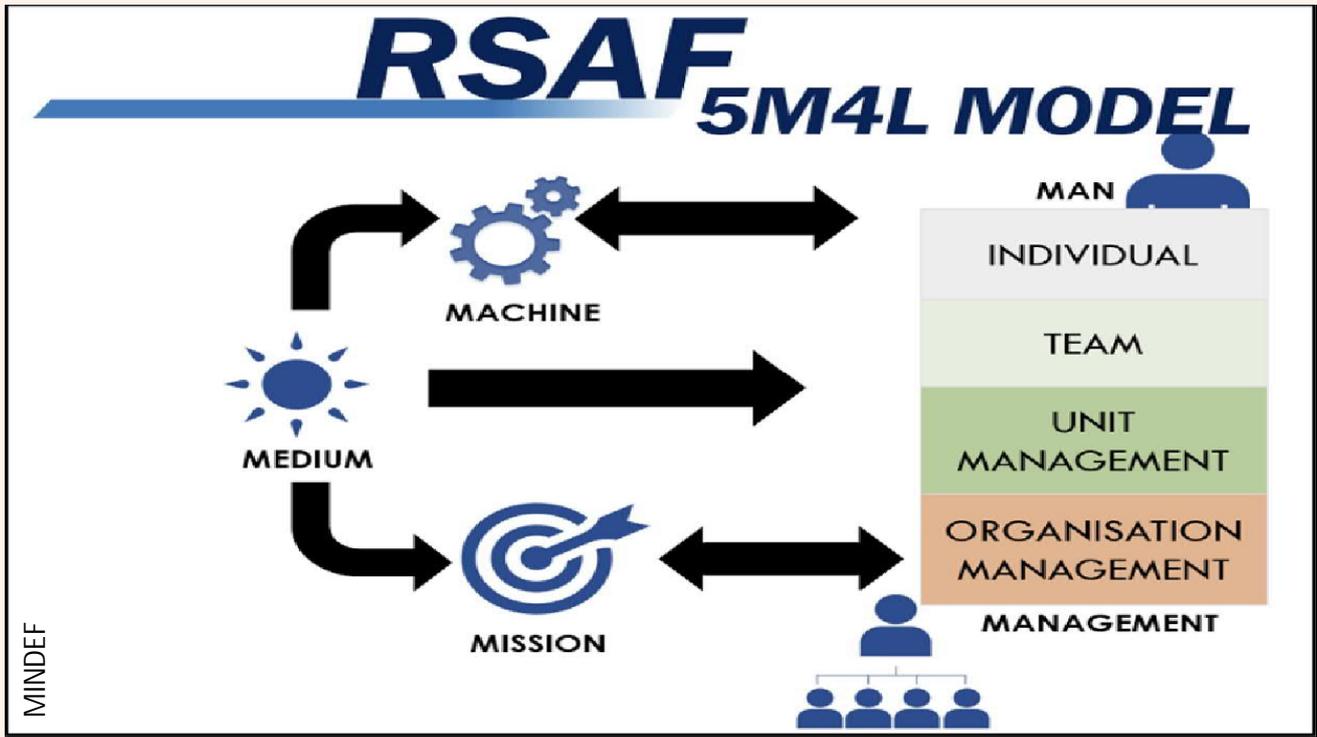


Figure 3: RSAF's 5M4L Model.

the time.<sup>27</sup> While failure to follow procedures is common in incidents and accidents related to both flight operations and maintenance procedures, there could also be systematic layers of defence that break down. Hence, a human factors-based framework is necessary for these organisational factors to be uncovered.

### Diagnosing Incidents and Intentions as part of a Just Culture

Psychologists with human factors expertise will examine the cognitive and attitudinal aspects that could have impacted an individual's and/or team's perception, which may have subsequently influenced decision making and behaviour. Following a safety incident, psychologists, together with operational, logistics and medical experts, provide specialist insights into the critical factors that led to the incident or accident.

One of the key challenges in managing investigations is ensuring that a just culture is applied to those who commit errors, in order to encourage open reporting and sharing. To err is human, hence, human error must be accepted within the organisation, so as to learn the right lessons and prevent the next big accident from happening. The key is therefore error management.

Using the Human Factors Accidents Classification System (HFACS), incidents and accidents can be clearly

categorised and easily diagnosed. The human factors specialist often leads the investigation interview using the HFACS framework, to guide questions and uncover the causal and contributory factors. In the SAF, the 5M4L classification has been adopted (see Figure 3). This allows for a simple, yet common language for all, to encourage easy diagnosis of an incident or accident and facilitate an open reporting culture.

Acknowledging that soldiers should take calculated risks and the possibility that even the best soldier can commit an error, it is unwise to charge or dismiss all soldiers who commit a safety lapse. Instead, frameworks such as the 5M4L take into account multiple factors, such as the intentions of personnel, the functionality of the machine, and organisation management. For example, assessments of whether the incident was caused by negligence, a breakdown of communications of certain information/ policies, machinery failure or environmental factors (e.g. heat or night vision) are made, so that outcomes are just.

### Administering Rewards and Punishments as a Response to Safety Behaviours

Following a safety investigation, actions may be meted out against individuals, to encourage or discourage the observed behaviour. A study on rewards and punishment in the workplace found that rewards are most effective when provided shortly after a

desirable behaviour is demonstrated, while punishments administered after a long period may not deter undesirable behaviours (see *Figure 4*).<sup>28</sup> Despite the negative effects of punishments, it is also important in the safety context to consider that personnel who intentionally and recklessly breach safety rules should not get away with it.<sup>29</sup>

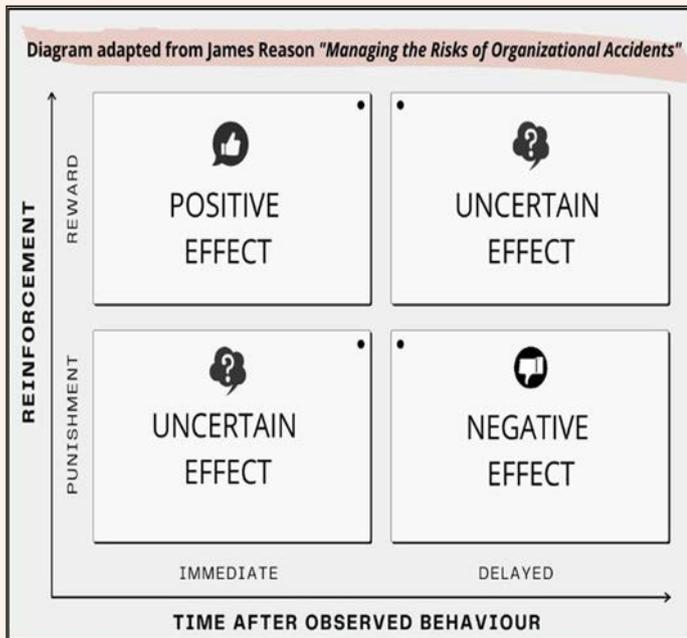


Figure 4: Effects of Rewards and Punishment in the Workplace.<sup>30</sup>

This suggests that rewards for desirable safety behaviours in response to a potential hazard or accident should be given shortly after they are observed. For example, verbal commendations can be given to soldiers during Post-Action Reviews, and follow-up actions to address near misses should be swiftly taken, to communicate that commanders prioritise safety and listen to their soldiers. Commanders should also encourage personnel to open report and commend those who do so. This way, even the last man on the ground will be encouraged to report errors and may even spot failed latent defences in the organisation.

As for punishments, delayed punishments tend to stir up feelings of resentment, possibly as these individuals spend time ruminating about the potential consequences and harbour impatience and fear. Immediate punishments on the other hand, may raise doubts about the thoroughness of investigations, and there remains uncertainty over its effect. Thus, safety investigations need to be thorough to justify the punishment, yet punishments should not be administered too long after the incident.

These efforts will communicate that the SAF has a just culture and is not unforgiving of errors. Instead, the situational and individual factors are considered before conclusions are drawn, and the impact of rewards and punishments are optimised.

## FUTURE DIRECTIONS

Given the enduring risks of military training and operations, coupled with the ubiquities of human error, safety must continue to be the goal each day. There remain vast possibilities for Psychology to be applied in the SAF, to further strengthen safety.

### Extending Safety Education to Safety Leadership and Safety Coaching

Safety coaching within an organisation entails having someone to observe behaviours and work closely with the workforce to modify behaviours through coaching and training.<sup>31</sup> Safety leadership modules can focus on improving situation awareness, decision making, and assertiveness of the management and supervisory levels through training and drills.<sup>32</sup> Equipping our commanders with effective coaching and assertion skills will also enable greater confidence to lead safety and change cultures. Hence, psychologists can educate commanders on safety coaching and safety leadership techniques, to equip them with the skills to promote safety behaviours among their soldiers.

### Examination of Behaviour Scripts as a Measure of Safety Performance

Accurate measures of safety remain elusive, as accident reporting and injury data may not always be sensitive nor reflective of dangerous behaviour.<sup>33</sup> An alternative outcome measure would be the examination of behaviour scripts, which are cognitive shortcuts that indicate the automatic and appropriate actions to take in high-stress environments.

In a study with the Israeli Defence Force, platoon commanders were presented with a list of events involving competing safety and mission demands and asked if they would proceed with the mission or prioritise safety and abort it (see *Figure 5* for a sample item). Respondents who chose to proceed would then be presented with a new contingency, with higher risk,

**Stem Scenario 1:**

You are leading a unit in a night training mission requiring sustained movement. From the outset, there is a shortage of night vision equipment. After a couple of hours the available equipment no longer works.

- Would you continue/abort the maneuver under any of the following circumstances (circle your answer)?

**Scene 1:** You are operating independently of the rest of the battalion. The terrain is problematic (rocks, ditches). **Continue / Abort.**

**Scene 2:** You are operating independently of the rest of the battalion. The terrain is free of obstacles. **Continue / Abort.**

**Scene 3:** Your movement influences the entire battalion. The terrain is problematic (rocks, ditches). **Continue / Abort.**

**Scene 4:** Your movement influences the entire battalion. The terrain is free of obstacles. **Continue / Abort.**

If you answered **Abort** to any of the above, how would you react if visibility had improved due to clearing skies on a starry night (re-consider each relevant scene):

Scene 1: Continue / Abort  
 Scene 2: Continue / Abort  
 Scene 3: Continue / Abort  
 Scene 4: Continue / Abort

If you answered **Continue** to any of the above, how would you react if visibility had deteriorated due to heavy fog (re-consider each relevant scene):

Scene 1: Continue / Abort  
 Scene 2: Continue / Abort  
 Scene 3: Continue / Abort  
 Scene 4: Continue / Abort

Figure 5: Sample Item from the Organizational Safety Events Index.<sup>34</sup>

and asked again if they would proceed. This reflected whether soldiers tended to be mission oriented or safety-oriented and was associated with safety climate.<sup>35</sup>

Similar items can be presented to soldiers in outfield conditions, to train servicemen to think through their actions when faced with actual mission objectives. Scores can subsequently be compared with safety climate findings, as a measure of safety performance.

### Exploring the Fields of Engineering Psychology and Cognitive Ergonomics, in Safety Warning Signs and Monitoring Systems

Often, Psychology is viewed as a domain that works only in human-to-human interactions. However, engineering psychology and cognitive ergonomics actually look at human-machine interactions to modify the design and/or operations of systems, to improve

interface and user experience. Thus, MINDEF/SAF Psychologists could potentially play a bigger role in improving safety by looking at the design of warning signs and monitoring systems with the knowledge of human behaviours. This may facilitate the assessment of ways to minimise human errors, reducing the occurrence of safety incidents.

## CONCLUSION

The value-add of psychology in the SAF is akin to the value of mirrors in sport gyms. Mirrors are seen on the walls of gyms worldwide, serving as a tool to educate gym-goers on improving exercise form, reflecting exercise performance and factors that may

lead to accidents. However, research also cautions that mirrors should not be used as a comparison tool with other gym-goers, as that may increase anxiety and affect performance.<sup>36</sup>

Similarly, psychology uncovers our blind-spots and biases, provides us with the opportunity to reflect honestly on our safety beliefs, and equips us with a bigger picture to make fair judgments. However, the knowledge gained must be used for developmental purposes, to avoid negatively influencing soldiers' safety attitudes. Together with the SAF's safety efforts, this enables the conduct of realistic and safe training and operations for our soldiers.

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# BEHIND THE SCENES OF UNDERSTANDING PERCEPTIONS OF THE MILITARY

By Ms Amelia Boey & Ms Camy Chia

## INTRODUCTION

Did you know that 73% of voters who consider wearing a face mask in public a personal choice voted for Donald Trump, while 64% of voters who consider it a public health responsibility voted for Joe Biden in the 2020 US elections?<sup>1</sup> This was one of the findings from the exit poll conducted with voters either face-to-face or over the telephone. You would probably have heard of such public polls being used during the US elections. Data collected in such polls has been used to predict and understand voting patterns and winners. During the campaign period, such polls give candidates important information about the public's opinion of them. In turn, campaign groups use such information to design and refine their communication messages to better reach out to voters and convince those who are less supportive of the benefits of their plans and agenda if they are elected. After elections, the elected party can better understand the profile of their supporters and non-supporters to better communicate and reach out to the various segments.

The use of public polls goes beyond the scope of understanding voting patterns and opinions about electoral candidates. Governments have always been concerned about their citizens' opinions and levels of confidence towards them. Hence, governments around the world use public polls to understand public perceptions towards the government and its policies. What underlies these opinions is the level of confidence, trust and support citizens have towards the government, agencies, policies and decisions.

'Public confidence' and 'public trust' in government are often used interchangeably. Essentially, they both refer to the belief that the government is acting in the best interest of its people.<sup>2</sup> Governments around the world have been increasingly interested to understand the changes in public confidence in public institutions. After all, citizens' trust and support for public institutions and policies are the foundation of

democracy, and are essential for a country to remain effective, successful and well-functioning. If public institutions are deemed as ineffective, economic and social problems will arise.<sup>3</sup>

Hence, conducting public opinion polls informs the government and policy makers about people's perceptions of these decisions and policies, and what influences these perceptions. These are also the factors that are likely to influence perceptions of confidence in the government. The information will then allow governments to educate and nudge perceptions if necessary, by changing communication strategies, or by improving systems and decisions. This helps to increase support and build trust in the system and the government, especially when the public feels that their concerns are addressed.

## LESSON LEARNED: THE 'CREDIBILITY GAP' FROM THE VIETNAM WAR

Research polls, the earliest identified being the American National Election Study in 1958, showed that America's public mistrust in leaders and public institutions started since the late 1960s, as the Vietnam War was escalating.<sup>4</sup> Political analysts and journalists believe that the decisions and perceived lack of transparent communication on US's involvement and decisions in the Vietnam War resulted in a 'credibility gap'—the difference between the president's statements and the facts on the ground, and which they believed only grew wider over the years. Throughout the war, the Johnson Administration had been assuring the public that the Vietnam War would be over soon. With broadcast television gaining popularity in the 1950s, the Vietnam War became the first major conflict to be covered on television. This also meant that the public were able to see videos and images from the frontline, and they found that what was presented to them was far from what they had been assured. According to the researchers and the press, their opinion was that the public felt that they had not been

honestly told the purpose of sending troops to Vietnam at the beginning, and later the scale of this operation. They felt that the seriousness of the situation was underplayed, because more and more dead were being sent home. What was promised to be a six-month operation to protect key landmarks became a three year war that resulted in almost 60,000 deaths, and many more injured who would later grapple with the dark psychological impact of what they had gone through.<sup>5</sup> Moreover, for several years, the public assessed that the administration continued to downplay the cost spent on the war, which was in the region of billions of dollars.<sup>6</sup>

To these researchers, it was quite clear that the Johnson Administration thought that it could get away with being vague and keeping important information from the public. What it seemed to have forgotten was that with the rising prevalence of television ownership in American homes, the masses had easy access to real life information and updates on the war. This perceived lack of transparency and credibility contributed to the lower public trust of the government in America. How the government managed the many other critical incidents in American history, such as the Iraq War, the Katrina disaster and financial crisis in 2007, have together led to Americans casting doubt on the government, which continued to impact public trust. Polling results over this last decade have been at historical lows as the public continues to doubt the government's credibility, which researchers also attribute to poor political leadership in recent years.<sup>7</sup>

## PUBLIC CONFIDENCE AND SUPPORT FOR THE MILITARY

Public confidence and trust in the military are especially important because these concern the survival of a country. Public confidence in the military provides important information on how much trust and faith the public has that the military will defend the country and protect her people in times of crisis. The poll findings reflecting the levels of public confidence are also a check and balance of the military's actions, policies and decisions, versus what the public expects. It is important to gather and understand these sentiments even during peacetime, so that policy makers can improve or intervene to improve credibility and gain public trust. Most importantly, these data points will also inform the

government of the likelihood of receiving support for their decisions to call for action during a crisis.

Interestingly, in research conducted to review public poll findings of numerous countries including the US, various countries in Europe and Canada, the militaries were found to be one of the most trusted public agencies, even more so than the rest of the government.<sup>8</sup> Similarly in America, the military has gained much more public confidence since the Vietnam War. The US military is one of the most highly regarded public institutions, with 78% of the public holding at least 'quite a lot' of confidence in the military.<sup>9</sup> However, Malesic had also pointed out that that high public trust and confidence in the military does not necessarily mean that the public or respondents are familiar or aware of what the armed forces are doing.<sup>10</sup> What they know of the military is largely based on what they read in the media, unless they have been through the system themselves. The reliance on media to inform the public of the role of a military is especially apparent now because for many countries, the military takes a different form and significance as compared to the past because of the reduction in traditional military threats and war.

Traditionally, public confidence in the military is earned through the military's performance at war, which is generally about the professional competence of the military.<sup>11</sup> However, many of the armed forces today are also involved in peacekeeping, humanitarian support and assistance, safekeeping, safeguarding and fighting unseen wars such as 'grey zone' wars. Bringing these roles to the public's awareness and helping them understand the importance of these duties would be helpful to earn their trust and confidence. These considerations also apply to understanding perceptions towards the SAF, our defence related policy decisions and communications for MINDEF/SAF.

Understanding public opinion of our policies is also important. Singapore has a conscript military, and this requires every Singaporean male to serve National Service (NS). It is difficult to compare the overall benefits and opportunity costs of NS as there are many intangibles, and some may focus on the cost over benefits. We thus cannot take support for NS as granted, and we have to continually engage the public on conscription policy. To this effect, MINDEF/SAF must



Picture 1: With a conscript military in Singapore, it is important to have public support for NS.

understand public sentiments on defence, and especially NS and its implementation, so that we are able to communicate our policies more effectively, and to understand trends to be forward thinking in the implementation of our systems and processes.

## THE 'WHAT' AND 'HOW' OF OPINION SENSING

The Defence Psychology community (DPC) has a long history of conducting opinion sensing on both our internal staff and the public for MINDEF/SAF. We track multiple indicators, such as perceptions on the need and importance of defence, as well as our policies, systems and processes. The main methodology that is used is through telephone and online polls to provide us with a dipstick of perceptions in a relatively short time.

There may be doubts about whether the respondents were answering honestly or if they were being politically correct out of worry about repercussions, or to 'fit in'. This could lead to questions about the validity of the survey findings. We as psychologists are cognisant of these very real challenges. Hence a lot of planning and preparations are done to ensure that we are able to collect sentiments that are as accurate and reflective of the general population as possible.

The core element here is the survey methodology. This includes, but is not limited to, how we phrase and ask our survey questions, which should be simple, direct and neutral as much as possible. We also reach out to a large enough sample that is randomly selected but representative, based on key demographic breakdowns, so that the aggregated responses can be generalised to the Singapore population. The next step is the actual calling when we do telephone polls, which has been our main mode of data collection. Standardised call scripts are used to ensure that every respondent receives the same information. Having interviewers from an independent company to conduct the phone interviews provides a higher level of psychological safety since they are neutral parties. Lastly, during data analysis, besides looking at the current state based on current data, we also look at long-term trends and triangulate findings with other objective hard indicators to look at how sentiments change over time.

Public polling is not the only way to get public opinion. While public telephone and online polls provide a general sense of how people think and feel about certain issues, it may not always be the best way to do so. Sometimes, issues can be very sensitive and may be misinterpreted easily if asked as a short question over the phone, or perhaps, findings from

public polls may tell us that we should focus on certain areas and go deeper to understand the sentiments of specific groups of people. Doing a public poll in these circumstances would be insufficient and perhaps even costly, since polls are meant to be relatively quick dipsticks to pick up sentiments at a more general level. We may therefore choose to employ different methodologies depending on the subject matter. For example, we may conduct focus group discussions with groups of a specific profile to understand what they think about certain issues that may affect them directly. We have conducted such focus group discussions with women, who are not conscripted and whom MINDEF/SAF has fewer touchpoints with, and hence need to actively engage to understand their opinions on NS. Sometimes, we may also conduct face-to-face interviews with individuals who can share their personal experiences and provide rich anecdotal examples, especially on sensitive or complicated topics, to help us to better understand the situation and perceptions.

## WE HAVE THE DATA NOW, SO WHAT?

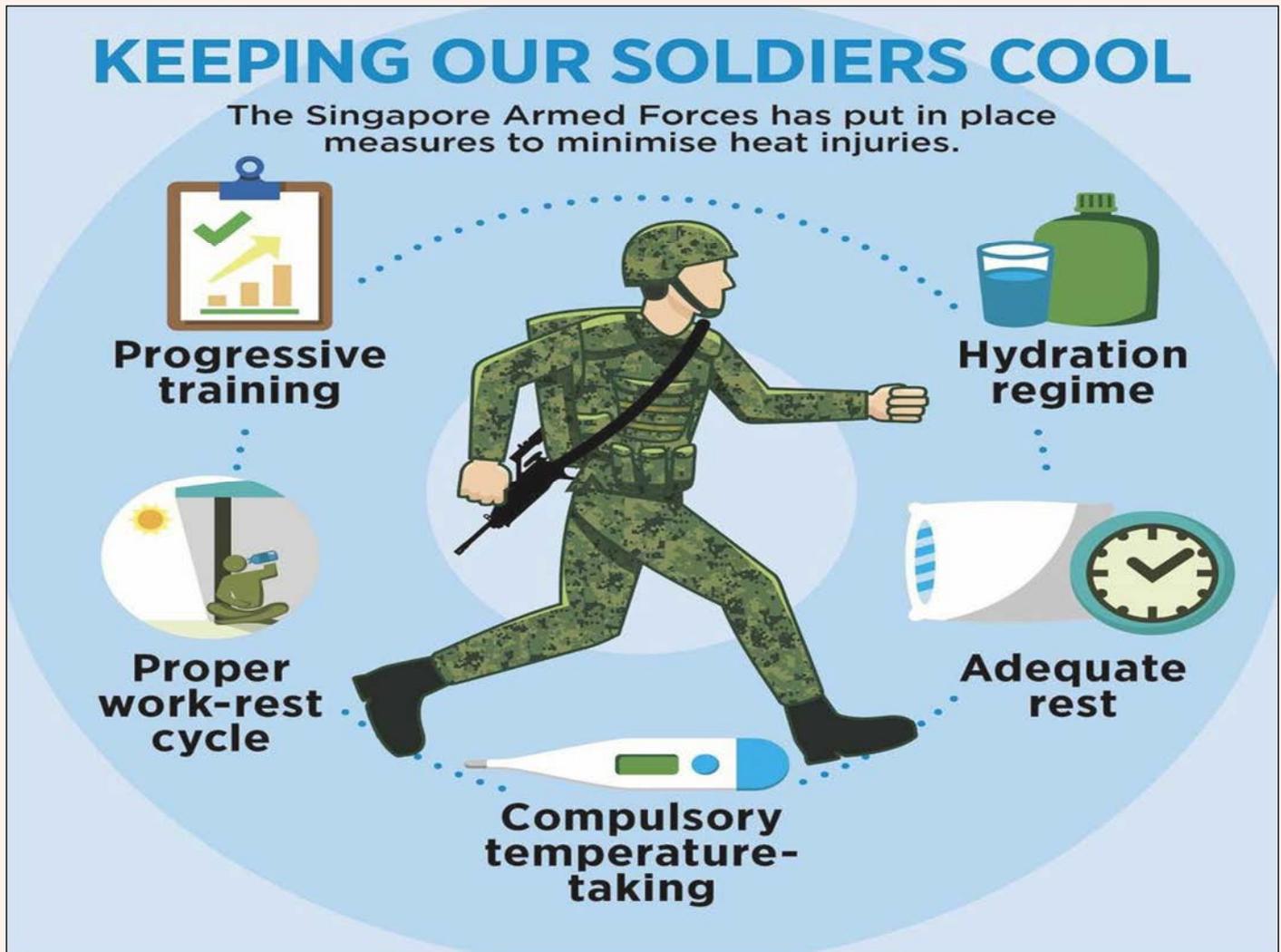
Gathering such information has provided stakeholders with a rich amount of data to work on improving our NS systems and communication efforts. Polls provide a feedback channel for us to monitor and bolster public confidence in our policies and systems during peacetime, building up a strong foundation for confidence in the SAF during crises. In 2020, we conducted a series of polls amongst the public and MINDEF/SAF personnel to understand how they perceived COVID-19 to have impacted the organisation. The findings informed us of their trust in MINDEF/SAF's ability to adapt to unforeseen circumstances, and provided feedback on the effectiveness of our efforts to profile MINDEF/SAF's measures to remain resilient and ready in the face of adversity.

Public polling also plays an essential role in helping MINDEF/SAF navigate challenging incidents that are of public interest. One example was the issue of training safety, which garnered much attention following the spate of training-related deaths between 2017 and 2019. While MINDEF/SAF undertook measures to improve safety systems and processes, a series of telephone polls was conducted throughout the period to gauge public opinion towards how we had responded

to the incidents, and public reception towards our communication of policy changes. The polls served as a feedback channel to MINDEF/SAF leadership and policy owners to help refine both policies and communications.

Regular and time-period specific polling enabled us to identify trends in public opinion towards the SAF's management of training safety and other related indicators, and attribute shifts in sentiments to specific events or announcements within the period. We observed that there was a decline in public opinions on the SAF's training safety standards during that phase. The decrease was in part due to the four cases that occurred between 2017 and 2019, and in part due to the heightened public interest with the passing of local artiste CFC(NS) Aloysius Pang. While the polls showed that perceptions towards the SAF's management of training safety declined, broader views of defence were more resilient. This knowledge enabled us to focus our communications efforts to address the incidents themselves and the changes implemented to improve training safety, while being assured that Singaporeans remained supportive of NS and defence in general.

Besides trend analyses that monitored overall shifts in perceptions, the data also allowed us to identify segments of the population that expressed greater concern. This enabled us to engage them more effectively, by adjusting our engagement modalities and introducing new outreach channels. One of the main groups of interest were the pre-enlistees. We reached out to them via the existing school engagement programmes, and disseminated content on social media to convey key safety messages such as how safety is a command and individual responsibility, and to increase awareness of the measures taken to improve our safety systems and processes. For example, the official MINDEF Instagram featured a video on the measures to improve training safety at every level of responsibility, in line with the announcements at the Committee of Supply Debate 2019. Similarly, the official Army Instagram posted a video demonstrating the SAF's heat management system. Another group who expressed concerns were mothers of pre-enlistees. We engaged them during Enlistment Day and graduation ceremonies by including new information sections on the safety systems and processes in place. These were



Picture 2: An example of an infographic released by MINDEF on social media to share about heat management and training safety.

implemented alongside collaterals on training safety accessible via the CMPB website, as well as the introduction of a dedicated letter on training safety to pre-enlistees' families. These efforts helped to provide mothers with an understanding of the SAF's safety mechanisms, and assure them of MINDEF/SAF's safety culture.

In addition to polls, focus group discussions were conducted to gather feedback on the SAF's management of training safety. Through conversations with the public and internal tribe, we better understood respondents' perceptions towards training safety and the protocols in place. Respondents also openly shared their opinions on the new safety policies that had been introduced. These discussions were a valuable channel for the organisation to gather suggestions from the public and servicemen across ranks, enabling us to take a more holistic perspective in enhancing and communicating our safety policies.

While public perceptions can swiftly take a negative turn, improving them requires a sustained endeavour. Policy and process changes do not result in immediate changes in perceptions towards the SAF's management of training safety. They have to be consciously and carefully communicated to shift public perceptions over time. While training safety has always been a topic that we monitored, we have increased the intensity and thoroughness of our polls since 2018, to ensure that timely feedback is gathered as we increased the momentum of our communications efforts. We continue to gather data on MINDEF/SAF's management of training safety to date, to ensure that we keep our eye on this critical issue.

### OUR SERVICEMEN'S AND SERVICEWOMEN'S SENTIMENTS ARE JUST AS IMPORTANT

The same principles and effort are used to understand sentiments of our internal tribe as well—

namely Regulars, DXOs, NSFs and NS men. These are the people who keep our policies, systems and processes well-oiled and running. Hence, it is important that their opinions towards our defence policies and systems are heard. What the public has an opinion of, our internal tribe would have too. Their opinions are even more important as they have contextual awareness, a lived experience that brings deeper understanding of our policies and what the organisation stands for. For example, their opinions on the continuing of operations and training during the COVID-19 pandemic inform stakeholders of the confidence they have that work can be executed well and safely during this period.

Additionally, the internal tribe can further enrich our understanding of MINDEF/SAF by sharing with us their personal experiences interacting with the system. For example, our NS men at the end of their In-Camp Training (ICT) would be asked to complete a Post-ICT Survey. This survey seeks to understand their opinions on the administrative and logistical aspects of their ICT and training, all of which are also important data points on confidence in MINDEF/SAF and its systems and processes.

Beyond that, feedback regarding their sentiments towards the work they do, the environment they are in, and the training that they receive are all important as well. The Organisational Climate Survey (OCS) is conducted once every two years to understand employees' engagement and perceptions towards their work, leaders and the organisation. During the height of COVID-19, we also rolled out a few pulse surveys to understand how employees were coping during this unprecedented period. Knowing employees' opinions on these issues helps the organisation to better understand how it can better support personnel. This information can influence reviews and policy changes, and even how we communicate those policies, which would eventually help with personnel well-being, engagement and retention.

## TO BETTER SENSE IN AN EVER-CHANGING WORLD

While many methodologies are available in collecting public opinion, researchers continue to refine these methods, or explore new methodologies that utilise technology. Sometimes, this need for review and

improvement is due to changes in the environment and society, which leads to certain methodologies becoming less effective. Our public opinion sensing system has worked well thus far; yet continual adjustments are necessary to ensure that it remains relevant in the face of an ever-changing world. The information cycle will continue to accelerate due to the round-the-clock nature of digital and social media. Social media has also enabled any individual to share their varied and personal views online, allowing fringe groups and malicious actors to propagate misinformation and disinformation. Recommendation algorithms lead to further polarisation of ideas and groups, as people are presented with belief-congruent information that reinforce their opinions and beliefs. This leads to the information space becoming increasingly fragmented and contested, as disparate actors can take to social media to propagate narratives and further their agenda. Public discourse is consequently volatile. Thus, we must evolve in the way we do opinion sensing to identify emergent issues and stay in touch with the changing dynamics of public opinion.

We must also stay abreast of changes in industry practices. The COVID-19 pandemic has accelerated the shift towards a digital means of public opinion sensing, through methods such as online polls and focus groups held via video calls. Practitioners acknowledge that the online poll has its inherent limitations, mainly issues pertaining to representativeness and response bias. Its speediness and relative resource-effectiveness, however, provide for a responsive and flexible source of information for critical topics that require short turnarounds. When used correctly, it is an invaluable partner to more representative but inherently slower sensing methods.

The shift towards online and digital means of communication has occurred in parallel with the decline of landlines and telephone calls. Correspondingly, response rates for telephone polls have long been waning. This is unsurprising, as calls are seen as more disruptive as compared to online polls, which can be done at the respondent's own convenience. In addition, with phone scams on the rise, rising scepticism towards calls from unknown numbers has contributed to difficulties in achieving representative response rates in short periods of time.

## EXPANDING OUR RANGE OF SENSING TOOLS

To tackle these challenges more effectively, we are reviewing our poll capability to use online polls and reintroduce face-to-face interviews (online or otherwise) to augment our current arsenal of telephone polls and focus group discussions for public sensing. Beyond traditional survey methods, we are also exploring social media and other digital means of sensing. A mainstay in marketers' toolkits, social media analytics leverage the real-time flow of information to monitor trending topics and traction on their campaigns. Messaging applications also present an opportunity for us to host discussions online, establishing direct channels with respondents to understand their opinions. They allow us to move from passive listeners to active encouragers of discourse to garner in-depth, qualitative insights from audiences with relative swiftness vis-a-vis traditional qualitative methods.

Each method has its own merits and limitations, be it speed, representativeness, depth of insights, or targeting. Telephone polls, while slow, can provide a more representative measure for long-term strategic outcomes when compared to online polls. Other qualitative measures such as focus group discussions and interviews can allow us to deep-dive into sentiments on specific topics for specific audience segments and facilitate discussions on sensitive or complicated topics, but they are significantly more resource-intensive and less suited for time-pressed topics.

There have also been developments in sensing technologies to enhance visitor experience at in-person events and exhibitions. Beyond self-reported measures like the feedback form, crowd analytics technologies utilise head pose and gaze estimations to track how attentive and engaged live audiences are. If this technology matures, it would provide useful information for curators and event organisers to tailor their strategies to optimise learning and engagement at our exhibitions, museums and events.

## IT ALL COMES BACK TO HAVING A CLEAR BUSINESS CASE

Ultimately, the usefulness of each sensing methodology depends on whether it fulfils the contextual requirements of policymakers and key decision holders. By expanding the range of methodologies available for use, we have greater flexibility to cater to different requirements. When used in tandem, findings gathered across methodologies can be triangulated to balance out the limitations and paint a more comprehensive picture of opinions towards MINDEF/SAF, especially for topics that are more complex and multifaceted. However, beyond using multiple sensing methods, it is crucial to ensure data quality. To borrow the computer science expression, 'garbage in, garbage out.' The data must be accurate as well as relevant to the use-case. A clear understanding of our stakeholders' business case is crucial for us to recommend sensing methods that can best address the questions at hand, and to effectively harness the data to derive actionable insights.

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# APPLYING BEHAVIOURAL INSIGHTS IN MINDEF/SAF

By Ms Chua Jia Rong & Ms Sophia Chua

## INTRODUCTION

The notion of a simple, low-cost and freedom preserving solution is appealing. The reported success of nudges in various domains, ranging from increasing tax compliance to encouraging healthier food choices has elevated its position as a complement to conventional policy tools such as legislations, regulations, and economic levers.<sup>1</sup> More importantly, nudges have contributed to greater emphasis on evidence-based methodologies in policy making and paved the way for other forms of behavioural change interventions such as ‘boost’ and ‘think.’<sup>2</sup> Valuable insights have also been gleaned from what did not work.<sup>3</sup>

Over the last decade, the term ‘nudge’ has become synonymous with behavioural change intervention that draws on insights from the social sciences, behavioural economics and neurosciences. Thaler and Sunstein defined a nudge as ‘any aspect of the choice architecture that alters people’s behaviour in a predictable way without forbidding any options or significantly changing their economic consequences. To count as a mere nudge, the intervention must be easy and cheap to avoid. Nudges are not mandates.’<sup>4</sup>

In 2010, the UK Behavioural Insights Team (BIT), also known as the Nudge unit, was set up to enhance the efficacy of government and to improve policy making using insights from behavioural science.<sup>5</sup> The term ‘behavioural insight’ was coined by the BIT to draw

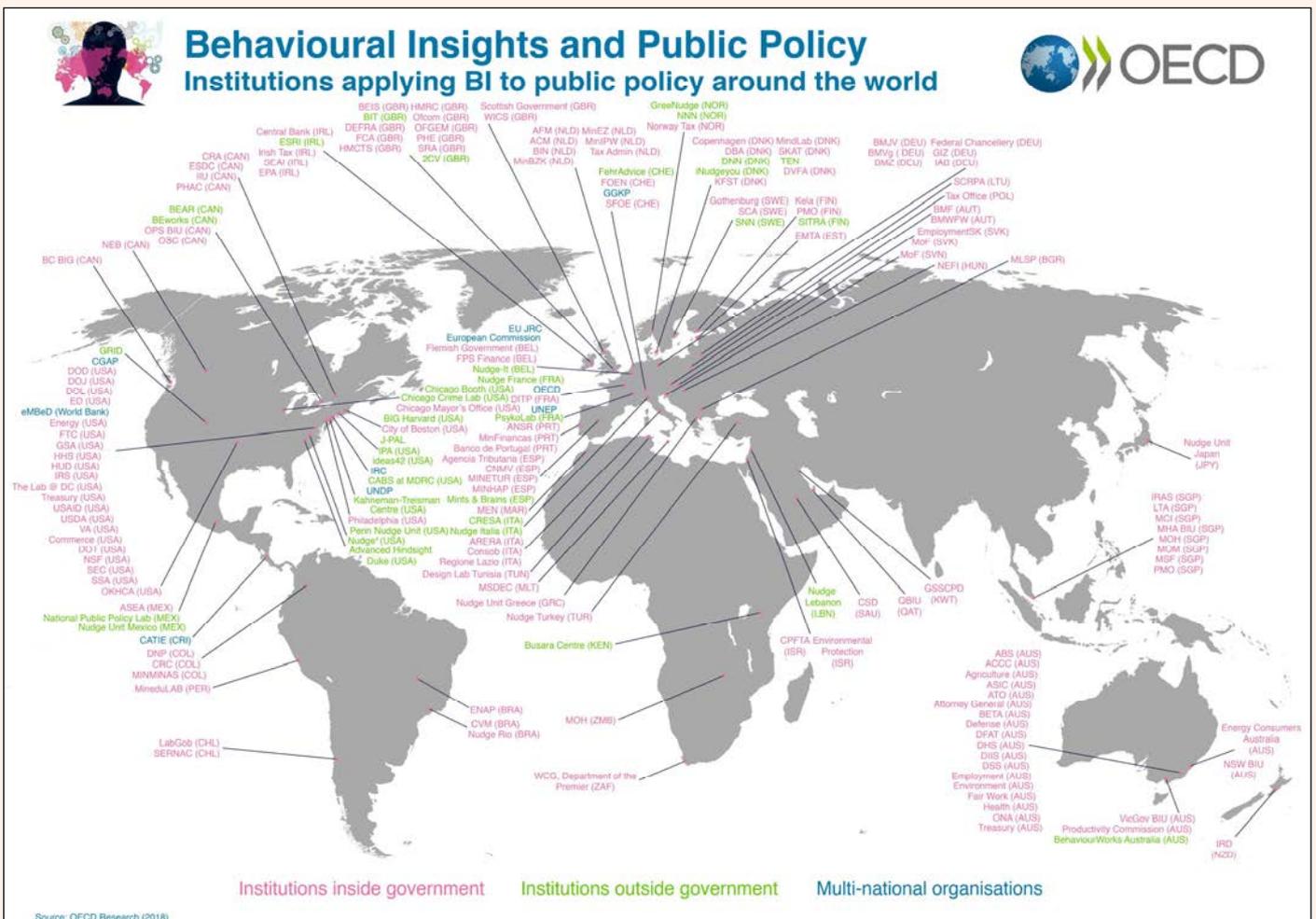


Figure 1: Behavioural Insights and Public Policy.<sup>6</sup>

together ideas from different disciplines. Today, the BIT has established offices in Australia, Canada, New Zealand, Singapore and the United States. In Singapore, it has worked with government agencies such as the Public Service Division, Ministry of Manpower and Ministry of Home Affairs to apply behavioural insights. Behavioural insight is more than nudging—it entails understanding how people make decisions, to design better policies or services and to help people make better choices for themselves. While behavioural science is not new, the popularisation of terms such as ‘behavioural insight’ and ‘nudge’ over the last decade has significantly increased its prevalence in public policy. According to the Organisation for Economic Cooperation and Development (OECD), more than 200 entities around the world were applying behavioural insights to public policy by 2018 (see *Figure 1*).<sup>7</sup>

## INFLUENCE OF PSYCHOLOGY

Neo-classical economics assume that people are rational in making decisions, that is, they always choose what is best for them based on perfect information.<sup>8</sup> However, psychology and behavioural economics have

documented many situations in which people systematically violate this assumption.<sup>9</sup> Decades of research have been done to understand how people make decisions and psychological theories played a prominent role in contributing to this understanding.<sup>10</sup> Notably, Kahneman and Tversky’s work on the psychology of judgments and decision making provided a framework to explain why people do not always make rational decisions as assumed by standard economic theory.<sup>11</sup> This framework became a key inspiration for the emergence of nudge theory and behavioural insights, to help people make better choices for themselves.

Kahneman proposed two systems of thinking—System 1 is intuitive and automatic, whereas System 2 is more deliberate and effortful.<sup>12</sup> System 1 employs heuristics or simple rules of thumb to make judgements but can lead to biases that may not be corrected by System 2. There is a multitude of heuristics in the literature (see *Figure 2*). One well-known example is the availability heuristic, when people assess the probability of an event based on how easily the relevant instances come to mind.<sup>13</sup> In one of the studies by Tversky and

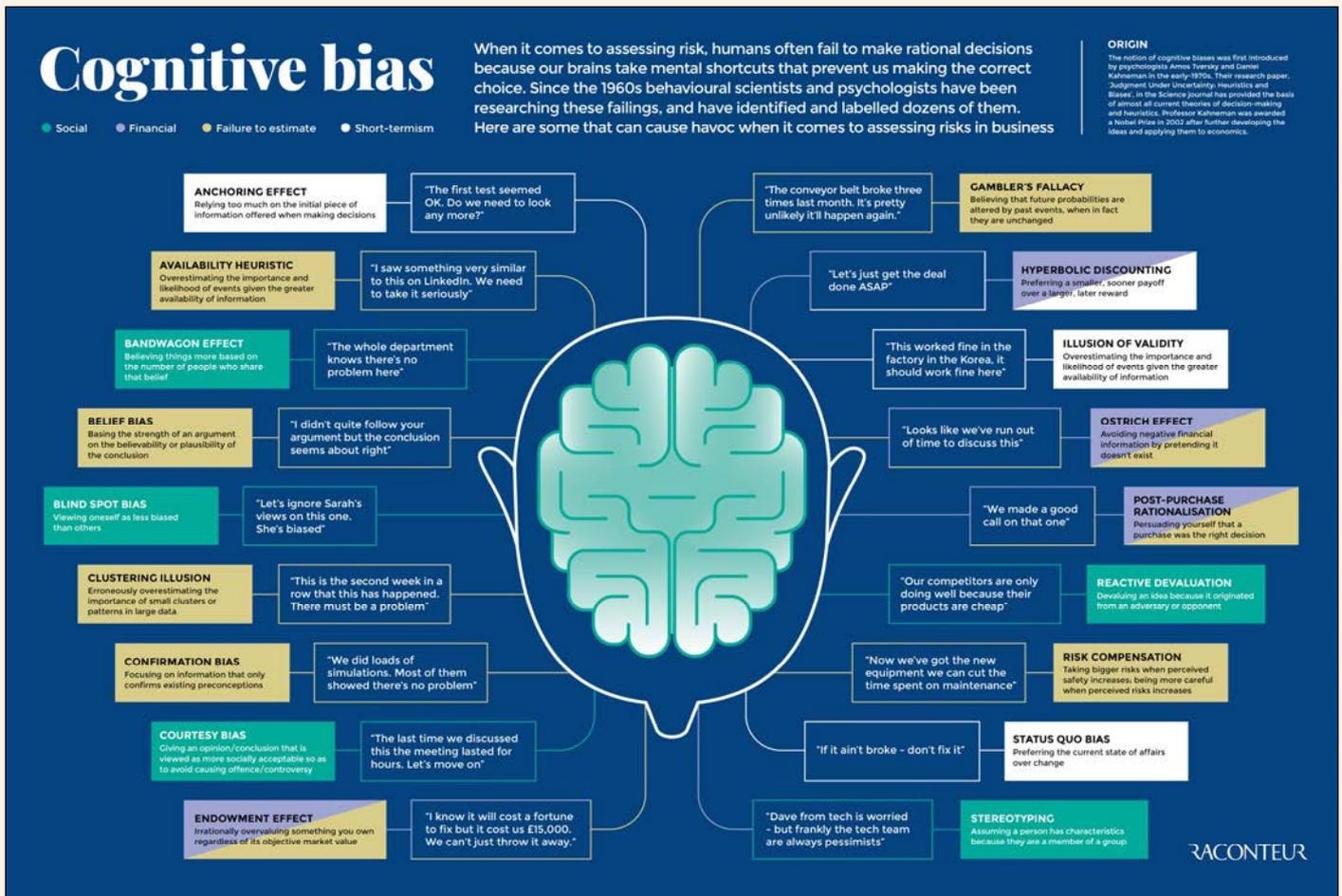


Figure 2: Cognitive Bias.<sup>14</sup>

Kahneman, participants were presented with five letters (K, L, N, R, V) that appeared more often in the third position of a word than the first.<sup>15</sup> When asked whether each letter was more likely to appear in the first or third position, majority of the participants chose the first position because it is easier to think of words that begin with a particular letter. The availability heuristic suggests that people tend to overestimate the probability of events that come more easily to one's mind.

More importantly, Kahneman and Tversky had also proposed the prospect theory, as an alternative model to explain decision making under risk.<sup>16</sup> They demonstrated that decisions can be systematically influenced by the way in which choices are framed. According to the prospect theory, people make decisions in terms of losses and gains relative to a reference point (e.g., existing wealth), find it more painful to lose a given amount than pleasurable to gain the same amount. People also tend to respond to losses or gains differently under different probability conditions (e.g., more willing to take risks to avoid a sure loss than to make a sure gain, but more willing to take risk to make an unlikely gain than to avoid an unlikely loss).

## EFFECTIVENESS OF BI INTERVENTIONS

There are many examples of successful BI interventions and these are a few famous ones:

- Johnson and Goldstein showed that countries with a default opt-out system to donate one's organs had higher rates of organ donation and suggested that the use of defaults could help save lives.<sup>17</sup>
- The Amsterdam airport reported an 80% reduction in spillage on its bathroom floor after etching images of houseflies near the drains of bathroom urinals to improve aim.<sup>18</sup>
- Shu, Mazar, Gino, Ariely, and Bazerman found that customers of an insurance company who signed an honesty declaration 'I promise that the information I am providing is true' at the beginning were less likely to underreport their automobile mileage for policy review, as

compared to those who signed at the end on an existing form.<sup>19</sup>

- Hallsworth, List, Metcalfe, and Vlaev showed that including social norm in an existing reminder letter could help to improve tax payment rates. For example, there was a 5%-point increase in payment rates when recipients were told that majority of people in their local area with a debt like theirs, have paid their tax on time.<sup>20</sup>

However, BI is not a 'silver bullet' that solves all problems. It is more appropriate for use in the case of a cognitive bias or behavioural problem. In the context of BI, a behavioural problem can be defined as a behaviour that, as a result of cognitive biases, occurs even though people have good reason to act otherwise.<sup>21</sup> Some policy issues may benefit more from traditional policy levers (e.g., financial incentives or disincentives, legislations, or awareness-raising approaches) or alternative non-traditional tools (e.g., design thinking or machine learning). For example, in a public health crisis like the COVID-19 pandemic where lives are at stake, people cannot merely be encouraged or nudged to engage in desired behaviours. Enforcements through legislations are required to ensure that citizens comply with safety measures in the interest of themselves and others (e.g. mandating mask wearing), while nudges can serve as a complement to motivate compliance (e.g. offering free masks, making masks more affordable or easily available in retail stores). It may also be inappropriate to use BI to influence decisions that are likely a matter of personal values rather than cognitive bias, such as the number of children one chooses to have.

In addition, the success of BI interventions is context-dependent. An intervention might be effective in one environment or at a point in time, but have no effect or even backfire when the context changes. Any effects could also possibly change for the better or worse when people gain familiarity with nudges through direct (e.g., being nudged) or indirect (e.g., reading media reports) exposure over time. Moreover, there could potentially be spillover effects on behaviours that are not nudged. For example, a nudge to encourage healthier food choice during lunch may

have an effect on one’s choice for dinner—maintain effort to eat healthily or feel permitted to eat less healthily. While there may be demands for quick-fix solutions, it remains important to have a good understanding of the problem situation and behavioural drivers as well as to collect empirical evidence and make modifications, before embarking on large-scale implementations. Post implementation, the effects of an intervention should continue to be monitored.

Finally, a successful BI intervention is also one that can withstand ethical scrutiny. A key area of concern is the issue of transparency, or the lack thereof. Thaler and Sunstein referred to Rawls’ publicity condition as a potential guide to transparency.<sup>22</sup> In line with the publicity condition, institutions should adopt interventions that can withstand public disclosure. Specifically, institutions should be open about what a new intervention entails and why it has been adopted.<sup>23</sup> Transparency also means that the intervention should be perceivable, by consisting of stimuli that are above the threshold of conscious awareness.<sup>24</sup>

## USEFUL FRAMEWORKS FOR APPLYING BI

Several frameworks have been developed to aid the application of BI:

- **MINDSPACE (Messenger, Incentives, Norms, Defaults, Saliency, Priming, Affect, Commitment, and Ego)**

MINDSPACE was the framework adopted by the UK BIT in its early years. It comprises nine key behaviour influences (e.g., people are influenced by norms, people’s attention is drawn to what is more salient to them) from psychological and economic research that can be used by policymakers and practitioners.<sup>25</sup>

- **EAST (Easy, Attractive, Social, and Timely)**

EAST is a simpler framework that was developed from MINDSPACE, and comprises four key concepts for influencing behaviours.<sup>26</sup> The idea is that people are more likely to engage in a behaviour if it is made easy, attractive, social, and timely for them to do so.

- **BASIC (Behaviours, Analysis, Strategies, Interventions, and Change)**

BASIC is a detailed toolkit developed by the OECD to help policymakers and practitioners apply BI more systematically and responsibly.<sup>27</sup> The toolkit comprises a suite of tools, methods, and guidelines to identify the policy problem, behavioural drivers of the problem, behavioural outcomes, interventions, and plans.

Both the MINDSPACE and EAST frameworks have been applied to BI projects in MINDEF/SAF (see next section), while the BASIC toolkit can serve as a guide through the process of a BI project from ideation to implementation.

Standard SMS	
SMS Content	Remarks
[CMPB] Dear Sir, your medical screening at CMPB is on DD MM YYYY. Please be punctual and ensure that you bring all required documents. Please do not reply to this SMS.	Original SMS as control condition
BI-Enhanced Message 1: Element of ‘Saliency’	
SMS Content	Remarks
[CMPB] Dear Sir, your medical screening at CMPB is on DD MM YYYY. <u>Please bring along your completed Medical Screening Questionnaire signed by your parent/guardian (if they have yet to acknowledge the questionnaire online), 2 forms of photo ID, medical documents (if any), and education certificates and transcripts (for private and overseas courses only).</u> Your medical screening checklist can be accessed at <u><a href="http://cmpb.gov.sg/cmpb/medical-screening-checklist">cmpb.gov.sg/cmpb/medical-screening-checklist</a></u> . Please do not reply to this SMS.	The phrasing was straightforward with key items included in-text. A link to the CMPB website was also included. These measures were expected to increase the compliance rate.

BI-Enhanced Message 2: Elements of 'Salience' + 'Messenger'	
SMS Content	Remarks
[CMPB] Dear Sir, <u>you have booked</u> your medical appointment at CMPB on DD MM YYYY. <u>You must</u> bring your completed Medical Screening Questionnaire signed by your parent/guardian (if they have yet to acknowledge the questionnaire online), 2 forms of photo ID, medical documents (if any), and education certificates and transcripts (for private and overseas courses only). Your medical screening checklist can be accessed at <a href="http://cmpb.gov.sg/cmpb/medical-screening-checklist">cmpb.gov.sg/cmpb/medical-screening-checklist</a> . Please do not reply to this SMS.	In addition to the provision of easy referencing, this SMS reminded them of the requirements in a directive tone, which is indicative of CMPB as an entity of authority, making them more likely to comply.

BI-Enhanced Message 3: Elements of 'Salience' + 'Messenger' + 'Disincentive'	
SMS Content	Remarks
[CMPB] Dear Sir, you have booked your medical appointment at CMPB on DD MM YYYY. You must bring your completed Medical Screening Questionnaire signed by your parent/guardian (if they have yet to acknowledge the questionnaire online), 2 forms of photo ID, medical documents (if any), and education certificates and transcripts (for private and overseas course only). <u>You will be asked to return to CMPB to submit your documents if you fail to bring them.</u> Your medical screening checklist can be accessed at <a href="http://cmpb.gov.sg/cmpb/medical-screening-checklist">cmpb.gov.sg/cmpb/medical-screening-checklist</a> . Please do not reply to this SMS.	In addition to the provision of easy referencing and directive tone, this SMS highlighted the need to return to CMPB should he fail to bring all required documents on the day of his appointment.

Figure 3: Standard vs. BI-Enhanced Messages (Pre-Enlistee Administration Compliance).

## BI PROJECTS IN MINDEF/SAF

Given the promising potential of BI, several trials have been conducted to explore using BI principles to enhance efficiency within MINDEF/SAF. Here are two examples from projects conducted within MINDEF/SAF.

### Improving Pre-Enlistee Administration Compliance Rates

One project sought to enhance the efficacy of the pre-enlistment administration process. Pre-enlistees are scheduled to attend a medical check-up at CMPB. On the day of their check-up, they are required to bring along several documents, such as medical documents, educational certificates and photo ID. However, some pre-enlistees fail to bring these items with them, in

which case they would have to make another trip to CMPB with the required documents. This incurs additional time and effort for the pre-enlistees and can also cause delays in the pre-enlistment administration process.

To tackle this issue, the trial focused on the SMS reminder which CMPB sends to pre-enlistees three days before they are due to attend the medical check-up. The SMS reminder typically comprises basic information such as the date and time of reporting. As part of the trial, three forms of BI-enhanced messages were developed, with changes made to the standard SMS based on different elements from the BI framework 'MINDSPACE'. See Figure 3 for the different SMSes.

Statistical analysis showed that the BI-enhanced messages significantly improved compliance. Among those who received the standard message, only 36% complied by bringing the required documents. This was increased to 52-67% among those who received the BI-enhanced messages, almost doubling the rate of compliance. Among the three enhanced messages, the *Saliency* as well as *Saliency + Messenger + Disincentive* messages were found to be especially effective, leading to higher rates of compliance (66-67%) compared to the *Saliency + Messenger* message (52%). This was an interesting finding, and suggested that for pre-enlistees who are not yet serving as full-time military servicemen, the directive tone of the *Messenger* element may have had a counterproductive effect. Following from the significant increase in compliance rate, we would expect for there to be a correspondingly significant downstream reduction in the time delay and manpower costs in the administrative follow-up process.

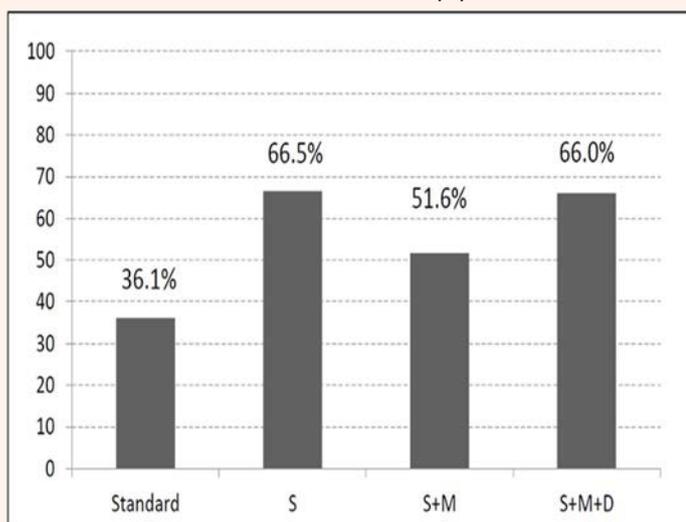


Figure 4: Compliance Rate Across Types of SMS Reminders.

## Improving NSmen IPPT Participation Rates

Another project targeted national servicemen at the other end of the NS life cycle, namely NSmen participation in the Individual Physical Proficiency Test (IPPT).

NSmen are given a one-year window to attempt their IPPT. They typically receive a notification SMS message once a year, prompting them to book an IPPT session, and up to two reminder SMS messages subsequently if they have yet to book or attempt their IPPT. However, these mass messages tend to be brief, impersonal and formal in tone.

A BI-enhanced SMS message was designed, which incorporated three elements from the BI framework 'EAST': (1) *Attractive* – whereby personalised elements were included, such as the specification of the sender as the recipient's direct commander, (2) *Social* – by setting a social norm with the percentage of their peers who had participated, and (3) *Easy* – by including the booking link directly within the message. See *Figure 5* for the standard and new messages.

Two units were selected to take part in this trial, one being assigned as a test unit, and the other as a control unit. Commanders of the test unit sent the BI-enhanced messages to their NSmen in August and December 2019, while the NSmen of the control unit received the standard message. IPPT participation rates for both units were tracked for the months of August 2019 to January 2020, and compared against three benchmarks: (a) the participation rate of the other unit, (b) participation rates in the same time period in the previous year, and (c) the average participation rates in the division.

The results were promising. The IPPT participation rate in the test unit was higher than all three benchmarks: (a) it was 4-5%-point above that of the control unit, (b) it represented an approximately 7%-point increase from the previous year's participation in the same unit, and (c) it was approximately 4%-point higher than the division average participation rate. While the comparisons fell short of statistical significance, the observed participation rates showed percentage-point differences in the expected directions. It is anticipated that a more extended period of observation might uncover a more pronounced effect of the BI intervention, given that the IPPT window varies across individuals.

These two trials demonstrate how applying BI principles can lead to measurable behavioural change that benefits MINDEF/SAF. This was achieved without incurring additional costs or adding cumbersome steps in the work process, but through simple revisions in the content of SMS messages that were already being sent, thus representing a high return on investment at no additional cost.

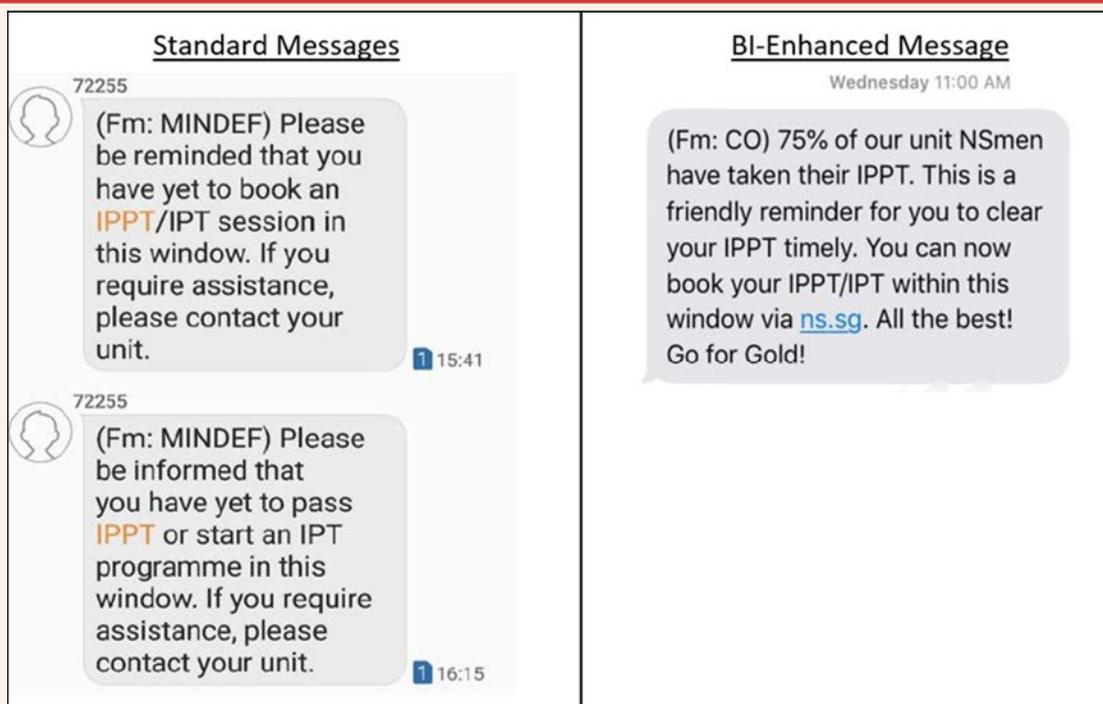


Figure 5: Standard vs. BI-Enhanced Messages (IPPT Participation).

## CONTEXTUALISATION

These trials are only a beginning. They point to the potential of applying BI in a more wide-ranging way in MINDEF/SAF. As a large organisation where many processes require human co-operation to run smoothly, each interaction and touchpoint represents a potential opportunity for BI principles to be applied, especially if the behaviour in question is influenced by cognitive biases. Where interventions are successful, this can lead to greater effectiveness in policy design and intervention, service delivery, communication strategies

and change management. The change in behaviour for each individual would then be multiplied to reap great rewards for the organisation.

More trials are needed to expand the scope of BI application in MINDEF/SAF, and to identify the situations where BI would be most suitably utilised. Local trials by other public agencies illustrate the effectiveness of BI across various domains, some of which could potentially be contextualised for application within MINDEF/SAF:

Area of Application	Examples of Local BI Efforts and Results
<p>Increasing participation in health and fitness activities</p> <p><i>Potential relevance: to encourage physical fitness in servicemen</i></p>	<p>Health Promotion Board (HPB) embarked on a study to encourage participation in their exercise programmes. Three simple interventions were trialled: (a) providing a nametag for each participant; (b) having participants broken down into small groups of three to four during the class; and (c) creating a WhatsApp group chat for participants. The purpose of these interventions was to produce a sense of community and friendship among the participants, in line with the ‘social’ component of BI frameworks. Subsequently, participation rate in the exercise programmes was found to increase by 20-30%.</p> <p>In the IPPT-In-Your-Community initiative launched by Singapore Armed Forces Reservist Association (SAFRA), IPPT training facilities were incorporated into neighbourhood fitness corners throughout Singapore. By bringing the training facilities closer to NSmen, this would reduce the effort needed for training, thus increasing the ease for NSmen to maintain their physical fitness via training for IPPT.</p>

Area of Application	Examples of Local BI Efforts and Results
<p>Encouraging safety behaviours at work</p> <p><i>Potential relevance: to encourage safety behaviours in MINDEF/SAF</i></p>	<p>In 2017, Ministry of Manpower (MOM) incorporated BI elements into their approach to regulate workplace safety and health among companies. To motivate companies with poorer safety performance, MOM provided these companies with information about their relative standing on safety performance compared to others in their industry, which could provide a sense of industry norms. In response, the companies showed a strong desire to improve in their safety performance during inspections. Many of them expressed that they were previously unaware of how poorly they performed compared to their peers, before being provided with the benchmarking information.</p> <p>The Workplace Safety and Health (WSH) Council also provides free access to workplace safety and health posters, which companies can obtain and use for internal awareness. These posters cover a range of topics, such as preventing heat illness, safe boarding of vessels and safe operation of excavators. Through the use of infographics, the posters highlight salient information and steps for workers and convey the message in an attractive and easy-to-digest format.</p>
<p>Improving survey response rates</p> <p><i>Potential relevance: to increase response rate for surveys and polls conducted by MINDEF/SAF</i></p>	<p>MOM conducts monthly surveys with local households to collect national statistics on unemployment. When notification letters were redesigned with BI principles in mind (e.g., written more concisely, contains an action-oriented header), this improved response rates by 0.4%-point from the control group (34.2% vs 33.8%). On the other hand, including a prize draw was not helpful, and led to a 4%-point decrease in response rates from the control (29.8% vs 34.2%).</p>
<p>Increasing donations to charitable organisations</p> <p><i>Potential relevance: to bolster SAF benevolent fundraising efforts, such as the Army Charity Drive, RSN Charity Heartstrings, and RSAF Charity Drive.</i></p>	<p>Civil Service College (CSC) partnered with the Singapore After Care Association (SACA), an agency supporting ex-offenders and their families, to examine nudges towards charitable behaviour. They explored the use of BI-enhanced invitation letters, which were sent to corporations inviting them to buy tables for SACA's 60<sup>th</sup> anniversary fundraising dinner. Invitation letters which had been enhanced by the use of anchoring (e.g., setting the anchor donation amount at \$5,000) showed the greatest results, compared to the control group, or to invitation letters incorporating reciprocity (e.g., a picture of SACA staff with a thank you message). 98% of the total amount collected came from the 'Anchoring' group. The average donation amount was almost double that of the regular donors in the same year, and also exceeded the anchor amount stated in the letter. This suggests that the use of low-cost nudges may be effective in encouraging donations to charitable organisations.</p>
<p>Encouraging energy savings</p>	<p>A National University of Singapore – Public Utilities Board (NUS-PUB) team studied the use of a smart shower meter which provided real-time feedback on current water consumption, and on progress towards water usage goals.</p>

Area of Application	Examples of Local BI Efforts and Results
<p><i>Potential relevance: for the SAF Sustainability Office in tackling waste reduction, clean /solar energy usage, resource savings and other sustainability efforts.</i></p>	<p>In a study of 550 households in Singapore, the presence of real-time feedback and goal progress feedback lowered water consumption across 4-6 months by up to 3.8 litres per shower, compared to households without the real-time feedback.</p> <p>This effect was also found in a study conducted in NUS University Town. Even among students who do not have to pay for additional water usage, providing real-time feedback on current water consumption via a change in the colour of the shower head led to a reduction in 5 litres of water per shower.</p> <p>By providing accurate information about resource use, such real-time feedback can be a cost-effective way to influence individual behaviour in water consumption, leading to benefits for households as well as for the environment and society.</p>

Figure 6: Effectiveness of BI in local trials by public agencies.

## CONCLUSION

Psychology has long shown that people are prone to cognitive biases despite their best intentions. With the application of BI principles, we can nudge individuals to make better decisions that lead to more

favourable outcomes for themselves and for society. There is much scope to explore the application BI more widely in MINDEF/SAF, and to utilise this data-driven approach in refining our policies and processes, and in overcoming challenges related to human behaviour.

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